Title:

Climate Risk Management in the Financial Sector

- COP26 Virtual Executive Panel

Panelists:

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Transcript

Babak: Hello everyone. So good to have you with us. I am Babak Abbaszadeh, CEO of Toronto Centre. Welcome to our webinar on climate risk in the financial sector that is being held in conjunction with COP26. I really, really love doing these events. We have a lot of participants from around the world, many agencies, NGOs, government officials. Welcome to you all. Since inception in 1998 Toronto Centre has trained more than 15,000 financial authorities form 190 jurisdictions to build more stable, resilient, and inclusive financial systems. Our mission is generally supported by Global Affairs Canada, an international development cooperation agency. The IMF Jersey oversees a comic relief and the USAID. In 2015, Toronto Centre began incorporating climate change into our programming because of the substantial implications to global financial stability. Please visit our website to download our new comprehensive climate risk toolkit for supervisors.

Today climate change is recognized as a mainstream risk to the financial system. The Bank of Canada and OSFI are consulting with stakeholders and developing climate change scenarios and stress tests that are critical to better understand the resilience of Canada's financial system to a transition to a low-carbon economy. This is indeed in line with the undertaking of the International Central Banker's Network for greeting the financial system to mitigate the risk against the impact of climate shocks.

The private sector, the UN, the task force on climate related financial disclosures and supervisory standard setters have ramped up their efforts.

The IMF is incorporating climate risk assessment as part of some financial sector assessment programs. However, despite all of this monopoly of action, much more still needs to be done to meet the Paris targets. Now, it is my honor to welcome our very distinguished speakers. They're important influencers on the international stage. They are His Excellency Alejandro Díaz de León-Carrillo is the governor of Central Bank of Mexico. He was also voted the best governor of the year and thank you for coming back to the Toronto Centre event Governor. Toni Gravelle, Deputy Governor, Bank of Canada. Ceyla Pazarbasioglu, Director of Strategy, Policy, and Review department at the IMF, and a former board member of Toronto Centre. Andres Portilla, Managing Director Regulatory Affairs, Institute of International Finance in Washington. Welcome to all our speakers.

You've seen their bios. I'd like to also thank Demet Çanakçı and our communication coordinate Cacey Edmondson who's behind the scenes. Please use the Q&A tab to submit your questions as early as possible. So, without further ado, let's begin. Ceyla, let me start with you. My very first question is, when are you coming back to the Toronto Centre?

Ceyla: I'm already back Babak.

Babak: We really miss you Ceyla. So, let me ask you. At the IMF you have the chance to reflect on these issues from a broader strategic perspective. Can you please elaborate how is the Fund contributing to global efforts to address climate risks, including with respect to financial sector risk oversight? Thank you.

Ceyla: Thank you Babak and thank you for having me as part of this great panel. This is a very important issue which was discussed very much in Rome at the G20 Leader's Summit, and of course also at Glasgow now in the last few days. We just published a Fund climate note which shows that unchanged global policies will leave 2030 carbon emissions far higher than what is needed to achieve the goal of one and a half degrees Celsius, and policy makers needs to address these critical gaps in both ambitions, as well as in policies for many of our developing country members. This is a challenge, but also an opportunity. And many sectors of the economy will need to transform, the governments, the business and the financial sector all have to work in coordination to transition to clean energy and production.

This is really a historical opportunity in terms of a new sustainable and green model of development to allow the planet to remain sustainable, but also at the same time have economic growth and job creation which is really important for many of our developing country members. We have discussed three key policy pillars in our comprehensive policy package advice. One is carbon pricing. That includes not just price for coal, but also regulations, taxation and other methods. And to provide robust and predictable price path for really needed investments. And what came out clearly in Rome and also in Glasgow is the need for investment and raising finance for investment.

That brings me to the four key work streams actually that we have really been focusing on. The first is we are working on a G20 data gaps initiative with other international organizations to address data gaps, most relevance for policy making for climate change. Second, we just launched a new climate change indicators dashboard earlier this year to provide data for macroeconomic and financial policy analysis. Third, working with the World Bank in our city in principles for sustainable finance classification so that the investments can be aligned with climate goals, and this is of course together with the network for bringing our financial systems and the G20 working group for sustainable finance. Fourth, we are developing a framework for climate risk stress testing.

This is what we are using in the context of our financial sector assessment programs, which you know very well and many of the audience hopefully knows about it. We just completed stress tests in two countries, Norway and the Philippines, and we are working on Columbia, South Africa, and the UK. And we're also putting together a template to assess supervisory frameworks in considering climate risk to evaluate adequate sale, production, regulation, and supervision.

So really scaling up our climate related assessment of macro risks, both in terms of our article fours which are our annual health check of countries, so our surveillance work, on our financial sector work, on our climate related capacity development for climate risk regulation and supervision, climate related insurance stress testing, and climate related debt management issues. Because as you can imagine, we really need to rethink our debt sustainability analysis going forward. So, there's a lot of work going on. I tried to summarize quickly. I can elaborate more as needed. Thank you.

Babak: Great, thank you so much Ceyla. I give you the gold medal for being concise, but as I'm listening to you it's very interesting, because in response to some who are cynical and say it's all about blah, blah, blah. You actually outline a list of concrete actions, and I know how much you have experience in FSAPS, and the fact that you can take a look at this to make sure these are relevant is really key. And also from a Toronto Centre perspective, and as you know we've been working on this stuff for six years, but it's really hard to go country, to country, to country without that kind of air support organizations like IMF can provide to incentivize countries to look at it more systematically. So, thank you for all your efforts.

Governor, so good to see you again at our program. You are a major player at the NGFS and are recognized as a respected global authority.

Thank you for your leadership in these challenging times. Most financial sector authorities do not have a mandate or an objective to reduce climate change. And who can really blame them? They don't set carbon pricing or anything like that, they essentially have to look at what others are doing and apply oversight. This is true especially for emerging market economies yet achieving net-zero demands action from all of us. In your opinion, how can emerging market central banks or supervisors make a meaningful, positive contribution? Thank you.

Alejandro: Well, first Babak, thank you for invitation and for Toronto Centre. Well, I think the COVID pandemic has shown that there are shocks that are global and across sectors that have a far-reaching impact in terms of brave, magnitude and so on, and we had no mandate to deal with pandemics. It is clear that we had to act promptly, swiftly, vigorously to avoid a financial crisis. With climate change, central banks are in a similar situation with no direct narrow mandate, but with a very clear responsibility of mitigating adverse scenarios and promoting financial sector resilience. In Mexico, we are taking several actions to coordinate our response to climate change, at least in four areas.

First, last year following an in-depth assessment of Mexico's financial system preparedness to tackle climate and environment risks, Banco de Mexico proposed the creation of the sustainable finance committee within the financial system stability council. All Mexican financial authorities are represented in this work, and the main areas are four. First, developing a sustainable finance taxonomy. Second, integrate climate and environment, social and governments, ESG risk factors, and supervisory and financial market activities. Third, to improve the amount and quality of disclosures, and reporting by non-financial and financial institutions. And four, enabling conditions to increase sustainable capital mobilization, which we think it's critical. Banco de Mexico and the Committee (the Sustainable Finance Committee within the Financial System Stability Council) are leading an intense financial education and capacity building program around ESG disclosures and climate risk analysis.

The objective is to align disclosure of climate and environmental information by companies and financial institutions to the standard to be established by the international sustainability standards board, proposed by the International Financial Reporting Standard Foundation, the FRS, and we think this is critical. The second key element is that Banco de Mexico has been engaging and incorporating with other central banks and international organizations to acquire the skills and capacities needed to tackle climate change risks. I'm here, as you mentioned we are founding members of the NGFS, and we actively participate in all of these efforts. The third element is coordination with private sector initiatives. In the last few years, we have been in constant dialogue with Mexico's Green Finance Advisory Council, integrated by the main financial associations in the country, as well as developing banks. The Council has actively worked in creating awareness, as well as developing standards for the insurance of green bonds and promoting the adoption of TCFD disclosure standards.

Banco de Mexico has encouraged the creation of private sector late initiatives such as establishment of the Mexican TCFD Consortium to be launched in early December. These consortiums will promote awareness and exchange of good practices among experts. The issuance of principles and training related to the TCFD recommendations. And the fourth item that I will mention, and the last one is that we are strengthening our internal capacities. We recently created, we in the central bank, a directory of analysis and policies of environmental and social risks. These will be an area that will work within the central bank and with other financial authorities and stakeholders to pursue basically the following goals. To integrate sustainability criteria in the relevant activities of the central bank, to develop relevant metrics to evaluate and monitor the physical and transition risks, and the opportunities that drive from the transition to a low-carbon and sustainable economy.

Third, the collaborating the analysis of implementation of best practices for the management of loans and assets in the financial system to foster sustainable development. And fourth, to develop, promote and disseminate best practice in financial education in the field of sustainable development. So, several layers of involvement for our central bank even though we don't have an explicit mandate, but I think we have a very clear responsibility. Thank you Babak.

Babak: Thank you very much Governor. Just a couple of observations here to connect some dots. Again, listening to you and Ceyla, it's very impressive to see the list of actions that are taking place. So, for those that are cynical about what's going on, it's really interesting to see how various organizations, especially in our sector are tackling it very methodically, and that's the lens you need to bring. Another point you made, I'm really glad you made that because it was not in my opening remarks is the linkage to the pandemic. In a sense that climate change is considered to be one of those things, that frog who's boiling in the water is not jumping out long term, but we've seen the devastation the pandemic has wrecked. Climate change is very much the same, it's just much, much slower. But without vaccination and without the abilities to self-isolate.

Alejandro: Thank you.

Babak: Let me go to Toni. Toni, it's so good to have you with us. It's always great to have the support from the home team, Bank of Canada. At the Bank of Canada, you are engaging global and domestic partners to build your analytical capacity and integrate climate-related risks into financial stability analysis. What are the overarching risks you see on the horizon? Thanks.

Toni: Thank you and thank you for being invited to this panel and being among such impressive colleagues on the panel. I think a lot what I'll say will overlap with what Ceyla and the Governor just mentioned. We are a central bank, and a lot of the work we're doing is both to assess risks emanating from climate change to the financial system and the macroeconomy, and to support the capacity building that the financial sector needs, but I thought I'd take a little bit of a step back. Our actions to mitigate climate change will lead to massively restructuring global economies, everybody's economy. You'll see certain sectors particularly emission-sensitive sectors shrink significantly in terms of economic presence as time goes on. And I think the example I bring up is the restructuring that we say in terms of the high tech.

So, all of you guys might remember when you first started in university. I'm a little older, so when I started university, we were using mainframes for computing power to do our econometric work, and as you know now internet and computing power is embedded everywhere in our lives, including my fridge. So, you've seen this change over time, but the thing is the structure that we'll see as a result of us trying to mitigate climate change is going to be that, but on steroids in terms of economic restructuring. So, society's effort to mitigate the fiscal risk related to climate change will also generate another kind of risk, transition risk. Which is the risk that certain parts of the economy will shrink as I mentioned, and asset values across the financial system could be subject to sharp declines in valuation which might generate credit and market losses, and it might increase the stress on the financial system. So, part of our work is trying to understand that risk to the financial system.

But the other more meta risk if you will, at least in terms of measuring in decades is that the financial sector will not have the plumbing or the infrastructure in place to properly or effectively reallocate capital to enable the transition to net-zero. And part of the work we're doing with OSFI, and as the governor of Banco de Mexico mentioned is to provide and build capacity, this plumbing if you will to the financial sector. And without it we're at risk of having capital allocated not to the most effective parts of the economy in terms of mitigating climate change. And I'll keep my comments short.

Babak: Well, Toni, thank you so much. There's a couple of things, and I see Ceyla's hand. If she still has a question, I'll come back to her in a second, but just a couple of things in response to you. I don't know if you remember, but you and I met with our friend Timothy Antoine, the Governor of the ECCB in February of 2020, just before the onset of the pandemic. And that was a very important conversation for me as I was listening because climate was all over it then.

You influenced my thinking at that point about asset prices, transition risk and that's where Canada and Mexico have a lot in common as resource-dependent countries. Transition risk is really where all the rage is at. Dealing with the physical risks is you do what you can. It's the transition risk that really shows who has what it takes to be proactive. Ceyla, did you want to make an intervention? No? Okay. I think Ceyla was just stretching. Going to Andres, you're representing the IIF, which is the global association of financial industry, big banks with more than 400 members from more than 70 countries. First of all, thank you for being courageous to come to an event of regulators. We're not going to hold it at all against you. Your private sector perspective is very important to us.

So your mission is to support the financial industry and the prudent management of risks amongst many other things. In your opinion, how climate risk practices are evolving in your industry, what are the early lessons from engaging with regulator authorities on these issues? Thank you.

Andres: Thank you for the invitation, as you say the opportunity to be among this panel with regulatory and policy authorities. I guess a number of the speakers have already referred to a need for collaboration and exchange with the private sector, so I guess you're doing this in this event, it's great to be here. I'll start by describing this both as an evolution and a revolution. And I say this because on one hand, and as I will explain later, what we're seeing here is an evolution of practices in terms of the models, methodologies, the data that is used to assess climate related risk. But I say it's a revolution also because of the speed with which this is happening, both in the private sector and in the public sector. And just for example, listening to Ceyla describing the number of policies, initiatives, programs, and actions that are taking place in the public sector tells you about the revolution that this is really representing.

But I guess everyone, and particularly the financial services sector is working in methodical and systematic understanding of these types of risk, and there are a lot of actions taking place right now within the financial sector. Just take a look in terms of disclosures, the adoption of PCFD. You've got over 2,600 corporates, many of them financial institutions adopting this. 40% of them are financial institutions are opting to use these practices. What we're seeing in the financial sector is the following. I would say the great majority of institutions are seeing climate-related risk as a risk driver. They take a horizontal view of this type of risk. So they don't consider climate risk as a risk in itself, but a risk driver that is affecting the other type of risk, primarily credit risk but not only. There's a lot of focus on credit risk. There's a lot of focus on trying to understand how climate risk, both from a physical and transition perspective are affecting revenues, capacity of payment, asset values, cash flows, et cetera.

That intrinsic understanding, it's essential to be able to manage these types of risks. Green authorities are working on this. You've seen the PRA in the UK, you've seen the ECB in Frankfurt, you have seen the MAS in Singapore describing expectation from supervisors as to what banks need to be doing. Those are incredibly helpful in promoting this type of practices. The BCBS will be working in this area, we expect something at the end of the month precisely on supervisory practices. I guess the issue of harmonizing those practices, harmonizing the way the expectations are formulated will be of essential importance to promote these practices and wide adopting among the financial services sectors.

One specific area where we see a lot of activity is scenario planning and stress testing. We have counted at last 28 of those exercises being supervisory led. This is incredibly helpful. The work of the NGFS has been instrumental for example in developing common scenarios that many authorities are using. These are being leveraged by financial institutions themselves, but while there are common factors such as these common scenarios, the methodologies, the results, the timeframes, the models being used are all different.

So there is a lot of fragmentation already happening, and this is the revolution type that I was referring to. So trying to promote more harmonized practices in this area is going to be incredibly important to promote that level of coordination, and to promote a consistent approach to that. I'll end with this, and there is a quote from Caroly Rogers, now at Basel Committee and moving to the Bank of Canada very soon, where she was saying as prudential supervisors, we're very focused on the impact of climate on banks. That part of the measuring, the impact, and the extent of those rates. We're not concerned about the impact of banks on climate, but I'd say, these are prudential supervisors, but I'm saying authorities are of course mindful of the impact of bank on climate. I think we're going to have an opportunity to talk about those issues later during this panel.

Babak: Thank you, Andres. This was actually very interesting. You could be the ambassador for supervisors here, so I think all kinds of conflict right, left and center. One of the things you said that really struck me is, you said, you talked about credit risk and all these connections to climate change and climate risk. What's fascinating is, we've had a lot of tough time in the beginning to try to convince supervisors that these are legitimate risks that need to be looked at in the context of climate, because they're all seized in fighting the last war, the last global financial crisis. Legitimately, all those things can still happen, but the point is to understand that climate risk is here, and it is a legitimate risk to the financial sector, and that's why the IMF is piloting it in and others. So, thanks for connecting these dots for us.

I just want to make it a little bit interesting for the audience, so we're going to go take a few questions from the audience, we have some excellent ones here, and then we go to the round two after a couple of questions. Governor, I want to give you this first question. It's actually a very interesting one. In the case of developing countries, what could the private sector and the economy as a whole do? Because they are also fighting COVID. And this question is probably very best placed to you because Mexico is at the forefront of fighting COVID, and all of this, you're dealing with that and yet you're taking leadership positions here. So how can you chew gum and walk at the same time? Thank you.

Alejandro: Well, I think you were highlighting that we are analogous, or there are some parallels in between COVID and climate change. The COVID high frequency challenge with immediate risks and perils, and I think on the climate change low frequency risks that would materialize in very unfortunate outcomes unless we start doing something more vigorously. I think we need to be mindful of both. I think this is not the first time that we have faced short term immediate challenges, and more medium- and long-term oriented challenges. I think what we need to do is, I would say try to adopt an element of all financial institutions, all private agents do not have a blind spot, and have clarity of what they need to do.

In an emerging market for a very long time, we have had I would say not necessarily a standard approach towards environment protection, so we must be worried not only about climate change, but also about environmental degradation, and our regulation and enforcement of regulation has not necessarily been up to the challenge. So, we need to be mindful about those two elements, and probably we can even take advantage about the climate change dilemmas and emphasis to also tackle those more locally challenges about the environmental degradation that go together with climate change. But I think we can use that momentum. Obviously, it's very challenging because we have less policy space.

Fiscal space has shrunk in a very significant way in emerging markets because of COVID. And that's why probably, one of the key issues about the COP26, and one of the challenges as we move forward is how do we deploy sufficient resources, not only in advanced economize that have proven in the last year and a half that they have more policy space than we had imagined before, but in the countries that need the most. In the countries that have no policy space. Emerging and developing economies, how can we put a lot of capital into work? Especially because they can have the most significant contribution toward climate change.

Babak: Thank you Governor. Of course, it's critical to have that leadership, and of course you can put on top of it the overlay of the toxic political environment that pervades around the world with polarities and everything else, so it is a really, big challenge here. Ceyla, just because you know everything about everything, I'm going to ask you this question. You're not at the Basel, but you have a lot of experience with them. Someone's asking, how do you think climate risk could be addressed in the Basel framework. Okay, please take a shot at this. I know you're not a presenting Basel. Go ahead please.

Ceyla: So, before that I was trying to raise my hand this time around, because I was just going to add a little bit to what Alejandro was saying. And you started it by saying something our managing director keeps saying. "We have to chew gum and walk at the same time." Meaning that we need to address the current crisis as well as the climate crisis. And there, what we see with COVID, there's a lot of divergence. Many countries are pushed back because they don't have the fiscal space, and the critical issue is to make sure that going forward both in terms of fighting COVID, but also fighting climate change that many countries get support. Both public support in terms of concessional lending and grants, but also commercial, private finance. And I'm sure we will discuss it further in this discussion. What are the deterrents for...? There's a lot of savings out there, it's just they are not necessarily going to some of the countries which really need them, and I'm sure we will discuss this going forward.

I was thinking when you were talking earlier that in many of the FSB and Basel discussions about five years ago, whenever climate change came everyone pushed their chair back, especially the governors because this is just a topic so different to them, but it's very different now. As the governor mentioned, both governor and as Toni mentioned, most central banks are really focusing on these issues now. I think before we talk about what Basel needs to do, and there's also a question in the chat about capital. Should we have capital requires on climate related investments? I think we must be very careful that we have a strong climate information architecture before we start putting regulations, capital requires, and other rules, because otherwise we will distort decision making.

So, I would really put on the table, and that's what Basel has been saying as well, the importance of having the right information, making sure that there is not greenwashing, because this is going to be critical to safeguard financial stability, foster sustainable finance and improve market confidence. And once that information architecture is there, once stress testing is more advanced, then we could think of, okay, are there things like favorable tax treatment in savings products like retirement plans, life insurance products and other types of instruments that could incentivize financing or bringing financing to these much-needed areas. But I think we must be very careful before we jump into capital requirements and other incentives.

Babak: That's very good, and yes. We have a lot more to say about greenwashing, but your context is actually very interesting here. Toni, I'm going to turn to you, and since I ambushed Ceyla with a question that was a little bit out of the box, I'm going to try to see if you can as a central banker provide a broader macro comment here. Considering the current environment where there are shortages with various automotive components, and that's just that. Supply chain shortages are a big conversation. Do you feel that this would, could be the time for automotive sector to accelerate the implementation of climate control actions between Mexico and Canada both have manufacturing assembling within your countries? How do you assist to drive a quicker implementation in this industry? The questions very specific to the industry, but feel free to broaden it out to the broader economy. Thank you.

Toni: I'm going to resort to some basic economics to some degree. Economics is all about incentives really and putting in place the right incentives to do things. So, one of the incentives that's already on the way, and it's been mentioned by Ceyla is that various countries are looking at policy changes that include carbon taxes, that can include regulation that puts in some sense or the other a higher cost on highly intensive greenhouse gas emitting activities. So, one obviously way to incentivize a switch to electric vehicles is a carbon tax on fossil fuels or gasoline. I think one of the interesting things about electric vehicles is there's also another... That's capturing the externality related to the cost that carbon emissions impose on climate, and so you're trying to capture that. An interesting thing about electric vehicles is there's another externality, and it's called network externality, or the catch 22 externality. If you will, that externalities related to the fact that a lot of people will not buy electric vehicles because there's no charging stations along the route to wherever they want to travel or where they work.

And without charging stations nobody wants to buy electric vehicles. But to put in place charging stations, you need a lot of electric vehicles. So, there's no incentive to put the charging stations in place. So, like I said, that's the catch 22 externality. Another way to get the industry to move towards electric vehicle production is to ensure or find ways or policies to enhance the number of charging stations around the world. I think finally there's another externality out there, it's the innovation externality, and there's literature out there about risk taking and how you might want to adjust the risk exposure of innovators so that they take more risk in a sense. So, you share the risk. For example, governments subsidizing fundamental research for example, so there's that externality as well. So those are the ways that the climate related policies in terms of the governments are already thinking about in some respects.

We in the central bank community are talking about these. We're doing research in this area to refine those issues, and also, I think we're just at the end of the day, like I said, trying to provide the infrastructure, the plumbing, the capacity to the financial sector both in data as Ceyla noted, and how to think about these things and map those two, what they'd care about in terms of credit risk and equity risk if you will.

Babak: Thank you very much, Toni. You articulated very well a couple of observations here. What you're saying about infrastructure is very similar to build it and they will come; the field of dreams is actually very true. And the other thing you talked about is electric vehicles and electric grid. Of course, I used to work in the energy file with some cabinet ministers, and at the end of the day you really need clean energy, otherwise what's the point of plugging into the grid? So, the questions are even more pronounced than that, and we see that right now. Oil prices are going up, the Biden administration is imploring OPEC to produce more oil in the middle of COP26 all these things are going on. And finally, I don't know what it is with central bankers and Canadian central bankers talking about plumbing. I've heard that from you twice today. I heard from Marconi in an article, and the chair of our board Stephen Ingves says, "The work of

Toronto Centre is plumbers teaching plumbers." So, I think it's very apt analogies.

So, let's go back to the structured formats. The questions are left on the table, we'll come back to them. They're all very good, and in fact before we do that Ceyla, somebody asked me a question here about the IMF. So, you can think about that, and we'll come back to that. I'll find it... Oh, here. No, sorry. I don't have it here, but I'll come back to it because I know where it is. So, Ceyla, let's start with you. Let me move to green financing issue. Do you... And, what you just alluded to set up pretty much for this question on greenwashing. Do you think green financing will become mainstream in the financial sector?

What are the tools we must make this happen and to guard against greenwashing? And let me put my spin on it. Not a day goes by that I don't open a mutual fund or ETF prospectus and, oh, its green fund, all of that. And then you look at it and the same companies that you can buy in a typical index for much, much cheaper MER, and yet everybody's taking the benefit of all these green announcements. So greenwashing is critical, and how do you and I really know that the money we invest in our retirement or for our kid's education is really ESG compliant? So, go ahead please.

Ceyla: So, great question. I'm just going to advertise a little bit our global financial stability report which just came out just about a month ago at the annual meetings where there was a chapter on sustainable funds and climate fund in particular showing that they have grown much faster than conventional funds in the recent past. It shows that 2020 flows into climate team funds grew by 48% in terms of assets under management. So, that's good, and you see that conventional investment funds are increasingly factoring ESG considerations into their investment processes. They have started to employ negative screens and are using stewardships to influence the firm's behavior. This was also discussed a lot at the COP26. You know that the work that Mark Carney has been pushing, and the number of asset managers and asset owners that have signed up to the principles for responsible investment more than doubled from about 1,400 in 2015 to more than 3,000 in 2020. So, these are all very positive developments, and I think we will see much more.

But I think as I was saying before, what will create a lot greener financing to be mainstream is really on two areas that we need progress. One is as I mentioned before twice, the climate information architecture, and the second is proper regulator oversight, which is critical to improve market confidence. So how can we classify assets and activities as green versus polluting, and how do we standardize this? So, the EU came up with the taxonomy to mitigate greenwashing and provide clarity to investors. The question is, how do we have such classification much more prominent in other countries? And much more standardized classification across countries because we all know that capital flows across borders, so it's not going to help us to have a taxonomy in each country which doesn't necessarily then become more standard. So, I think that's the key area, and we have been discussing with our world bank and our OECD colleagues on how to partner in terms of if you like the principles for such classification across countries.

Babak: Ceyla, that's very reasonable. And just another observation. I guess if you live long enough you see something's come back repeatedly. I used to work for a very large institutional investor, Canada Pension Plan Investment Board, and back in 2005, 2006 they were the original signatory to the UNPRI principles for responsible investing. ESG was first coined at that time, but the CEOs at that time of these institution investors, I thought did something very clever. Rather than relegating all of this to the PR departments, they put it in the mandate of their investments, more public market investment portfolios demanded disclosure. And that's important, and it's interesting because fast forward 10, 15 years later. Some people are just beginning to discover ESG, so it's important to go back and look at what some of the others are doing. So, thank you for that.

Governor let's come back to you. Ceyla did a bit of mild advertising, so I'm going to take that as a license to do it ourselves. You and we have been talking together about a possibility of Toronto Centre, Banco de Mexico some courses, America's courses I guess if you will for climate risk. So, I don't want to pre-empt that, and I don't want to put you in a corner. So those courses will take place if it works, but we're really looking forward to that opportunity with you. Now, moving to the question. Some emergent economies with developing agendas are taking a lead in setting green targets. Could you please elaborate on the role that central banks or financial authorities of emerging markets can play to facilitate that green transition? And as you recall, Toni earlier talked about how difficult the transition is. And in your case, I mentioned a point about Canada and Mexico sharing the challenges of transition because of our resource-based economies. Go ahead please.

Alejandro: Let me start saying that in the emerging market and developing economies we are facing the financing challenge, it probably is one of the key elements. And I think as I would mention before, many of the world's lowest cost mitigating opportunities exist precisely in emerging and developing economies. We can have a large decarbonization impact, a larger positive externality than the same resources applied in advanced economies. And I think this is one critical element. It is essential to move from a bad equilibrium with high financing costs and insufficient green investment to a climate friendly funding sources that scale for these countries are generally low financing cost.

And I think financial authorities, I would say in emerging markets, also in advanced economies, institutions should try to see how these can work in a timely and speedy fashion and not wait until the incentives play their own implicit role. I think the discussion should be mindful that emerging markets have less space as we've already highlighted because of the

COVID. I think unlocking international funding would be very, very important. There is a need for these low-cost financing, and probably one way to do it is to develop a new asset class.

I think we can leverage MDBs, and regional and local developing banks capacity to create a new global asset class to finance climate action. I think we could include for example portfolio guarantees like first loss or something like that in a portfolio, and this would allow for some of these resources to really be deployed at a global scale. And I think these creative enhancements could significantly allow for investors that usually want a higher rating to deploy resources. So, this type of, we can even say ETF type of structure could develop these financing alternatives. And, let me highlight another one which I'm not sure it's been discussed enough, which is it relates with how we can finance changing of technology, how with can incentivize even car and car production to move into less hydrocarbon and so on.

Which is export/import bans could facilitate a low-cost transfer of low-carbon technologies which are fast developing. And I remember in my previous years, many years ago being the head of Mexico's Central Bank, there was a lot of project financing with renewable resources that was not done at a massive scale. There were important projects, but I think that could be done at a massive scale. And I'm sure that advanced economies would see as a very profitable venture to put those technologies into emerging and developing economies with low cost of financing and long-term financing. So, the key challenge is here, how can we deploy the adequate type of financing in a timely and sizeable fashion. And I think a true green global network of existing banks and developing banks that combines developing economies, and emerging economies could play a critical role in making some of those much-needed projects a reality.

Babak: Yes, Governor, and in fact it's very interesting how you connected a dot on another issue that was relegated to the margins for a long time, blended finance, right? So, in a sense what you're talking about is another innovation of that, premium private, public financing into a developing need, and I can't see a better application of it, and you persuasively made a case for that, so thank you. Andres, turning to you. Your industries leadership is critical. We can all try to have the best rules to supervise, but it really comes to the industry and industry acting in making progress on net-zero. Not a day goes by when a major financial other corporation doesn't announce a new ESG initiative or green investments, and they take large ads in papers. What is the industry doing to make sure that these pledges are followed through with real actions? In other words, how can IIF and the financial industry help foster meaningful action to make progress towards net-zero, and at the same time guard against greenwashing? Thank you.

Andres: That's a great and difficult question, but it's an important one. I wanted to refer however if you allow me briefly to the previous topic about capital and regulatory approaches, because I think this is a quite important topic.

I agree fully with what Ceyla was saying about cautioning to rushing to develop a regulatory capital-based approach to these issues. That's the question that the Basel Committee itself is asking about, is this the Basel framework for these types of risks? We have a one-year horizon assignment of capital for unexpected losses. Is this the type of framework that we should be using for climate race. It might be that they're already included in Basel. They're risk drivers that effect credit risk, and credit risk as well regulated within Basel. It might be that it is already embedded, but that we need to adjust, add on et cetera to the framework. It's an important question.

I don't think anyone has the answer yet. The Basel committee itself is looking at the issue. Banks themselves are looking as to how best to manage this risk, and there must be a capital by mention. But I think the methodological and beta issues that we have highlighted remain as key challenges that still need to be worked on, but it's a work in progress. But again, I agree fully with what Ceyla was doing. In terms of transition, absolutely. And I think I guess you should think of this in terms of what do you want to achieve at the end? You could perhaps take an approach through which you would be carbonized completely the portfolios of financial institutions. And that would be just put financial institutions on the side and say we would have nothing to do with polluting activities and industries. You will be on the side, but I would say then the financial services industry would not have any meaningful role or impacting actual emissions by the corporate sector.

The other approach could be the financial sector needs to be part of that transition. It needs to be working with its clients, helping them in that transition to achieve meaningful emission reductions. And I think that's the preferred approach, but you obviously need to set goals. You obviously need to embrace metrics. You obviously need to make a commitment that you're going to reduce the financing of emissions. But at the same time, you need to set ambitious goals on the financing of transition. Financing the changes in technology. Financing all the necessary actions which as we know are going to be multi-trillion of dollars activities, but the public sector does not have the resources to finance that transition. So, I think that the role of the private sector is going to be fundamental.

My last comments, I think everything that is happening right now, I think Glasgow, the GFANZ initiative is providing a very good base for that type of coordinated action by the financial services sector. I think in terms of the metrics that are being discussed, in terms of the targets that are being adopted, in terms of the commonality of methodologies and metrics. We need to be able to compare bank A and bank B transition plans and commitments. We need to have a common framework. It's been developed. There are no standards, these are guidelines and I think rightly so, because the methodologies and the science behind is still evolving. But I think that common framework is a good one. Is one that the IIF has supported and that our members are embracing, but that level of commitment needs to be there, and I think it's good that those questions are asked for the financing sector.

Babak: Thank you, Andres. I'm not one to always to turn around and advocate for the banks or private sector, but you were saying something very interesting which is what I'm hearing behind what you're saying is that what you're looking for is some degree of regulatory certainty. The banks need to know which direction they've got to go, and then they will go, and then economic incentives follow. Sometimes we do it the other way around. We say it's all about returns and capital, but policy has definitely a big role to play in that certainty of decisions and returns, so thank you for that.

Toni, let me end with you in terms of our structure questions, and we have a really live, exciting number of questions out there so we want to get through as many of them as possible from the public. So, Toni, the Bank of Canada and the Office of Superintendent of Financial Institutions as I mentioned in my opening have been working on a pilot project to use climate change scenarios to better understand the risks to the financial system related to a transition to a low-carbon economy. Can you tell us a little bit about this important project, and are you cleaning anything at the moment? Are you learning anything as you go? Go ahead please.

Toni: So, I'll give you a little bit on the objectives of the project. I think at an obvious level I think it's building our own capacity OSFI's and ourselves to assess the impact of climate risk on the financial system. And we're doing that by developing scenarios. By understanding how these scenarios and the climate pathways effect their sectors, and then how those sectors eventually effect their credit risk and market risk face by financial institutions. A second and equally important objective is to, as I mentioned before, build the financial institutions capacity to measure and understand their own exposures to climate risk and be able to disclose those exposures, align with TCFD and eventually also more practically is to provide the industry with a standard, a template set of scenarios and outcomes for them as the industry to use. So, we're trying to increase the standardization to some extent of the scenarios out there for Canada and for the Canadian FIs.

I think the scope of the project, just to go over this. It basically involves us and OSFI of course, and a small set of participants in the Canadian financial sector to large banks and for insurers, to life insurers and PNC insurers. Just to get this going, we didn't want to roll it out with a large set of participants, we'd be still working on it next year probably. I think the other part of the scope is that we look at the 10 most carbon-intensive sectors globally and in Canada. So, we're not looking at every part of the economy, but we're looking at the most carbon-intensive sectors because we're more interested in transition risk, that restructuring risk that I talked about that will have negative impacts on certain assets of financial institutions.

How is the pilot working out? Of course, like I said, we are building and creating scenarios focused on transition risk, and they're aligned with the NGFS scenarios, and especially they're aligned because we contributed heavily to the NGFS scenarios, but they are more granular both in terms of sectors and geographically that are currently available in NGFS scenarios. So, we wanted to have more granular sectors, sectors that are relevant for Canada, and, we wanted to have a bit more of an understanding of how Canada in particular is impacted by these sensibly global scenarios. They also include a sharp transition scenario, or a scenario where the policy, or the carbon taxes if you will. The implicit policy is delayed, and because they're delayed, they must be a bit harsher starting in 2030 for example to catch up and meet the two degrees, or the 1.5-degree Celsius objectives of climate mitigation. These scenarios give you pathways to the two degree or 1.5-degree mitigation via one implicit policy, and it's an implicit carbon tax. We call it a shadow carbon tax. Basically, it's assumed in the model there's a policy tool out there that forces an economy to achieve the 1.5 or the two-degree climate mitigation target.

And then finally, I think the newest part, the most involved part is working directly with the individual FIs as what we do is provide the sectoral impacts, the negative income impacts on these very sectors. For example, oil and gas has over the next 30 year a very negative impact on the net income of that sector, and that is fed to the FIs, the FIs use a bottom-up process where they sample a few of their current assets, be it corporate that they hold either in terms of loans or other forms of credit, or in terms of equity, and they do a bottom-up analysis given that they know that net income losses to calculate the credit risk related to those.

I think what I can tell you is one of the lessons learned of course is there's a lot of work to do in providing and developing these capacities. We need more standardization of risk assessment methods. We are trying to provide a little bit of a standardization via a standardized scenario, but there's a lot to do at a grander level. We need as others have mentioned improved data availability, information ability, and then I think one of the linchpin things is we need to better have stronger climate disclosures at the corporate level so that the financial institutions themselves understand their own individual assets, climate exposure or corporate, if you will exposure.

We're planning to release the final report, the results of the report at the end of this month or early into December. There's a large summary part, but also, we're releasing several technical documents, basically to serve as a how-to, so we're really trying to enhance the industry, not just the six participants in the project, but the industry as a whole capacity to measure and understand their climate-related risk exposures. So, these technical documents should be used as a how-to. We're also going to release in relatively fine detail the data underlying the scenarios themselves. The sectorial impacts, the negative income impacts by sector as well so that financial institutions can grab that. Reading the technical documents should hopefully be better able to do their own risk assessment process.

Babak: Thank you. This sounds like a very comprehensive diagnostics if you will, and how much of this is would you say be replicated within the NGFS community. Are you sharing information with some of the other peer jurisdictions that are doing this crosstalk ?

Toni: Well, the NGFS itself is sharing and continually evolving the scenario aspects of the work. I think we're just probably, as Andres pointed out, there's roughly 20 to 30 other jurisdictions doing some form of stress tests. They're not all the same right now given the state of the art of the scenario analysis. As I mention our scenario had to be a bit more refined in terms of the granular level and in terms of geographic detail. So, I think the intent of the NGFS is always to share notes and always to improve on that, but I think just on terms of the stress testing it's not quite there, but it will happen.

Babak: That's fine. Sometimes you can't really wait for a top-down approach, the bottom-up is always very useful and you could inform what they're doing and help other jurisdictions who may not be starting as early as you have. So, let's go to the favorite part here after listening to your comments and remarks, the audience Q&A. Let's try to see if we can address as many of them as possible. I'll go back and forth in terms of the order of questions that I've received. Some of them I think have already been addressed through other questions. So Ceyla, this is a question for you. Has the IMF developed climate change models that have been issued to carry out the climate risk stress tests? If so, is this model publicly available or not. Thank you.

Ceyla: So, the Fund is working on stress tests together with the countries that we are doing FSAPs. We as Toni also said, this is work in progress. We do publish FSAPs, and of course the methodology underlying that country’s financial sector assessment program does get published. But as I said, this is really trying to understand better the country's specific circumstances, sector specific circumstances, and being able to look at different types of risks. The physical risks, the transition risk and so on. So, we don't yet have a methodology that could be used by all countries, but what we are doing is using these pilot FSAPs if you like to stress test our own stress test, and then be able to come up with methodology that can form the basis for many countries.

Babak: Great, thank you. And you also did mention something about Article IVs, you've been making some observations through them as well when it comes to climate scenarios.

Ceyla: Right. So there, that's important because we are looking at the 20 largest emitters, and strongly encouraging the coverage of mitigation policies in those countries. And then for other countries we are more looking at adaptation. There are some small states which adaptation is critical. So, depending on country circumstances, we are looking at covering these mitigation and adaptation and finance issues in our Article IVs.

Babak: Okay, thanks. Andres, I'm going to go with you on the next question. And I mean IIF is associated with big banks, but the lines are blurred. It's a cross-sectorial world and you probably have some major insurance companies or companies that have major insurance involvement. There's a question here about, are there any policy initiatives or interventions that can help prod along the insurance industry's participation efforts to mitigate climate risk and support the growth of green economy. While on the one hand, insurance has been on the forefront they were dealing with climate change before event it was called climate. But I'm wondering, do you have any insights into this question?

Andres: Absolutely. Just to make a precision guess, the IMF has close to 500 members. Roughly 55% of them are banks, but the rest are insurance companies, asset managers and all in fact the financial institutions. We have a very active participation from the insurance community in our work. The IAIS on the supervisory side has been doing a lot. They have recently released additional guidance on climate risk, but as you say if you look from the physical risk perspective the insurance industry has been dealing with this risk for quite some time.

Now they are even refining their practices even more, and then they have on the other side their capacity as institutional investors, and I think that's an important role that insurance companies are playing because of the size of their balance sheets in terms of being good stewards of their investments and in terms of the ESG requires that they are placing as investors. So, both sides of the balance sheet in terms of the managing of their liabilities, and increasing evolution of climate risk management, particularly from the long-term perspective that insurance companies take which suits very well with the type of risk that we're talking about. So, lots of factions both from the private sector, but also on the supervisory side through the IIF.

Babak: Great, thanks. Governor, there's a question here from our friend Augustine. It's an interesting dilemma here. Says, I am from a non-bank financial regulator authority in Sub-Saharan Africa, Botswana, and want to know how you, I guess all of us, are going to bring us on board in terms of bringing our attention to climate change and environmental risks? The reason for that is that we do not have the mandate and objectives to implement this, and I don't see that happening anytime soon. So here we have a climate supervisory partisan if you will. Like partisans, trying to do what they can do. So, what advice and guidance do you have for them? Not so much for their jurisdiction per se, but in your NGFS and talk to various countries developed and developing, how do you advise people or help people to move beyond that dogmatic mandate restriction? Nope. That's not our job. Go ahead please. Thank you.

Alejandro: Let me start saying that there is a tendency that only the risks that are immediate deserve our attention, and that the risks that are a little bit more medium-term we can wait until a better time to address them. I think to be very honest; I think climate change is already materializing in credit risk. I think for example, if you look at the PGNE Bankruptcy Chapter 11 that started last year and so on, it really reflects the combination of some of the climate change effects, and some of the challenges of not changing the way a company works to incorporate those new risks and challenges, and this is very material. So, I do think that climate risk, both transition and physical should be on our radar screen. I think we can not leave them in a blind spot, and it will haunt us back if we are not fully aware of it.

So, my first comment would be, it is material, and it will materialize as credit risk, and if we don't pay attention to it, and some countries are more exposed than others. And unfortunately for us, and I speak here in the case of Mexico, we are highly exposed I would say to both physical and transition risks, and we need to be mindful about that. So, we cannot allow for these types of shocks to materialize in a stronger and more severe fashion if we can do something about it, and we can also not be mindful of the potential risks for the financial system and the stability of the financial system. So, the fact that it is not a direct part of our mandate, that does not mean that we are responsible for having stability in our financial systems and avoiding adverse scenarios.

So, I think we should not lose the perspective that even though there may be differences in enthusiasm around this agenda, and I think we have seen this, even the political dimension in the last years, and that enthusiasm may go up and down. I think we should not lose sight that the private sector, the regulation that financial authorities and central banks could really move in a more clear and decisive way, and still these, I would say conditional on politics. And politics sometimes are very enthusiastic, and sometimes could be less enthusiastic about the agenda. I think if regulators and the financial sector, asset managers, financial institutions, we all incorporate this in our standard way of doing things, I think it will go a long way. And that's what I think also central banks should try to incorporate this as the standard way of doing things.

Babak: Governor, without trying to be dramatic about it, I think what you just said is that the most succinct way I've heard the case being argued, and this is very useful for us at Toronto Centre because when we try to build the capacity of financial regulators and supervisors, getting past that question of, why do I have to do it? My mandate and all that is a big lift. But essentially the way you are articulating is that this is very much part of climate risk in a way that we all intuitively know, but you put it in vocabulary that is readily understandable. Thank you.

A question here from our friend from Global Affairs Canada, Kerry Max. This is a question for the Bank of Canada. Given a temperature trajectory is not likely to be much higher than previously thought, are your scenarios sufficiently flexible to adequately price the much higher downstream risk of non or delayed action? Thank you.

Toni: So, our scenarios right now only look at transition risk. We do not capture fiscal risk, so I think that's where the questions coming from. No, implicitly because we were ignoring fiscal risk now, but the trajectories are to be so that the economy will be aligned with 1.5 by 2100. These are standard scenario building blocks that we use marginally in the NGFS, but also in various UN and other foundational science-based processes, so the quick answer is no.

Babak: Okay. Thank you. There's a question here from a courageous anonymous attendee. Ceyla, I think I'm going to give this to you because you don't represent any specific government, but you sit on the top of it and have a lot of experience in various public settings. So, I guess the question for you as a representative of all of us. Do you feel sociopolitical pressures, and could mandates evolve consequently?

Ceyla: That's a very good, excellent question. I think two answers to that. One is clearly there is a lot of political pressure both ways. Both in terms of doing something, but also in terms of the cost of action. So, one of the key issues is going to be how we have what is called just transition policies to overcome the political economy obstacles and addressing fairness concerns, because obviously there will be winners and losers during the transition process. But I think the second point I want to raise is that... and the Governor talked about medium-term risks. I think what the current research shows it’s actually... And he said they are here now, so I want to underline that.

What we are going to do between now and the next four, five years is really going to be critical in deciding what degree goal we end up with by 2030. It's not like we need to take policies or do things after that. It's in this next five years that are going to be critical. So, I think there will be a lot of social and political pressure to do something, but how we do it, how we make sure that it's done in a way which really earns the trust of the public is going to be the critical issue that we all have to deal with. And I can just tell you very briefly what we have been looking at IMF. You have probably heard of this historic 650-billion-dollar SDR allocation, the special drawing rights which came into effect in August, which was critical to increase global reserves, boost reserves, official reserves across the globe, but also to support countries which are really needing the fiscal space, the reserve space and so on.

Part of the action now, part of the work that we are doing now, which is a highest priority for us is to see voluntarily some of the best economies are saying, we would like to channel some of these special drawing rights, which are reserve assets to countries that need it. And for structural transformation including climate change. So, we have been really working hard on this resilience and sustainability trust which could be the IMFs 20-year loans to support countries for what we call prospective balance of payments needs, because there will clearly be policy changes that will require financing. So that's what we have been working very hard on with many member countries as well as other international institutions like the world bank.

Babak: Thank you very much Ceyla. We have a question here from Debbie. Andres, I'm going to pass it to you. I'm going to read a question and explain why I'm forwarding it to you, because you are an unlikely candidate for the answer, but I think you will see the logic. There appears to be consensus on the importance of climate disclosures. Should they be standardized or mandated? Typically, I would impose this to a government authority, but you represent the financial industry, and governments, whenever they think about coming up with a mandate they worry about the reaction from the stakeholders. Well, you are the stakeholder. Does it help your sector to have standardized forms of disclosure that are mandated, or do you think some players would just use it as a checklist and say, "Oops. You didn't ask that question." How would you approach this issue? Thank you.

Andres: Extremely important issue Babak, and the answer is it's a strong and resolute yes. The need for standardization. But not only for financial sector company's disclosure, but I would say corporate disclosures in general. One of the big challenges for financial institutions in terms of managing the risk is the lack of data, the data gap issue that Ceyla was referring to. And that is because for listed companies there is a little bit of good information on scope 1 and 2 emissions, very little on 3. But once you go outside listed companies, there is no availability of information. But if we can for listed companies and financial institutions standardize as much as we can, that is going to be a tremendous level of progress. I guess the initiative that has been announced in Glasgow this week, of establishing these global sustainability standards board, and the draft paper and set of recommendations that is being issued and finalized next year is going to be instrumental in the standardization.

Voluntary versus mandatory. I guess while it is evolving, the voluntary nature is adequate like TCFD, but I do feel that we're going in the direction of mandatory disclosures, certainly here in the US for example with the SEC. So, I think that's the direction of travel, but for that we need a strong, quality standard for it, and that's what is being developed.

Babak: And, whenever you look at some sort of a consensus view of membership type-based organizations, unfortunately it gravitates towards the lowest common denominator. If it's mandated then the industry can... Good players can voluntarily exceed that, so it's better for everyone overall. Thank you. We have a follow up question from Kerry, governor I'm going to pass this to you because in your capacity as a central bank governor you have a lot of say in the world bank and IMF at the board level, maybe even the Inter-American Development Bank.

So the question is, as a follow up on the suggestion of a new asset class, and leveraging of multi-development banks or MDBs, what are your views on the importance of multi-development banks sectorizing parts of their portfolio to enable institution and patient funds to purchase these credit acceptable investments? So that's the question. He goes on to say that I guess in his opinion this would then provide billions of new resources to these banks to enable them to provide risk sharing capital into emerging economies to better incentivize private sector co-investments. So, you can look at it as the question being embedded in the answer, but what is your general view on this whole topic? Thank you.

Alejandro: Well, I think that this is a huge opportunity, and I think for a very long time what has dominated has been the approach of, you put your project together and then look for the financing, and that goes very slowly to be very honest. And I think because of the physical and the transitional risks that we are facing, this cannot be the approach towards how we finance these greener technologies. I think we really must put a different portfolio type of approach. I think the SDRs are a way to provide some type of... maybe could be put to work as a guarantee. There are other ways to put guarantees in place. I do think that what will do the trick to promote green capex around the world should be truly low cost of funds, and long-term financing for these technologies, especially in emerging markets and developing economies.

And I'm sure the creativity of MDBs and national development banks should be put to the test, and we should really deploy these resources in a very significant scale. So, I was mentioning understanding the new technologies and how banks, they always have their own financing for their own technologies, but this can be done at a global scale. And I will tell you, I think it will even be pro-growth in terms of, if you promote all these financing and throughout the world. I think it would also stimulate economic growth, would stimulate investment, answer one. So, it has many positive angles, so if we just let the current status of financing carry on, we will not meet the targets. They put the project together and knock doors to see who can finance it is not going to deliver. I think we really need, not a bottom-up, but a top-down approach with out-of-the-shelf financing alternatives that could really accelerate things.

Babak: Yeah. So, in other words, we know what the problems are. We know that there is sufficient money to go around. All the developing countries are cash-strapped, so let's talk about deliberate policies that funnel the money into the right direction. Thank you for that. There's another question here from another courageous anonymous. This time the individual Bob O'Brien and identifies himself at the end. So, thank you Bob for that question. The first speaker talked about the need for investment into green technology to transition to low-carbon economy. So Ceyla, I guess this is coming to you. From a financial regulator's perspective, I'm interested to know if there is work being done by IMF or others on capital treatment of such investments? Grateful if you could point us to some resources or initiatives. I guess this builds up on what the governor said. Ceyla, go ahead please.

Ceyla: So, yes. I think there is obviously a lot of growth going on, whether that's capital treatment in the sense of capital adequacy treatment. We discussed this before. I think we need some foundation to be able to incorporate it in the regulatory frame. But I think what I would like to basically continue what the governor was talking about, that we are not talking about ODA or development lending for specific project here and there. We're talking about a major global risk, and I think unless we accept that as a major global risk and potential crisis, we're not going to be able to address this issue.

So a lot of the work is actually thinking through how to provide the framework both in terms of the information, in terms of what are the key policies that needs to be in place for a just transition, and I think we shouldn't forget that part of it, just transition, and how the financing both from public sources, but more importantly from the private sources can be a channel to this very important investment that is pro-growth, pro-jobs and so on. And I think that's really going to be critical, and I know we are soon going to finalize Babak, and I unfortunately must run shortly, but I want to say something.

And you didn't ask me to say it, but I will say it. I also want to thank you and the Toronto Centre for the vision, because I used to be at the board of the Toronto Centre, and these issues, climate related risks, financial stability issues, you were talking about five years ago. So, my hat off to you and the Toronto Centre for the great work on this issue, and the excellent hands-on training that you provide in many countries. So many thanks for that.

Babak: Thank you very much Ceyla, and I remember you were one of the supporters back then when others were going back in their chairs when these topics were coming at the board and other areas. But we're all on full board. Thank you so much for that. There's another question here, Toni, I'm going to pass this on to you. There's a lot of interest on these electrical vehicles. So, the comment of investing more in green technologies such as EV movement. How have or should policy initiatives address the labor, financial, environmental cost of sourcing the green tech resources, such as mining of lithium batteries and other minerals used in the manufacturing of EVs. Couple that with all the supply chain problems that we have. So let me just throw this very big question at you and see if you have any thoughts on this. Thank you.

Toni: I might not answer the question directly, but maybe more indirectly. The carbon pricing provides the incentive, so as cost to fossil fuel grow, use of fossil fuels for example, or other highly intensive emission producing industries or products grows the cost of those green or renewable types of inputs into green or renewable technology will look less. That's how it works. But just taking a step back, all these climate scenarios, those transition-based transition risk climate scenarios find without considering the benefits of lower climate calamities find that global growth is a bit weaker over time with the imposition of climate policies. One of the things that the more recent work shows that if you invest in productivity enhancing technologies, or productivity enhancing the economy, making the economy much nimbler and more flexible, including in labor markets for example, because there's going to be like I said huge, broad macroeconomic restructure that's going to happen. If you make the economy much nimbler, and more efficient, and more productive, as the governor mentioned you get more growth out of this because you're investing in innovation and technology.

The problem is, is you must line up the policies. You must get the incentives right, and that's in the short term might feel very hard to swallow, but in the long term you have a lot more jobs. You have an economy that's much more flexible. See, these are basic things that are good, but you're doing it for the restructuring that you need for climate. It's a win/win at the end of the day.

Babak: That's great. I'm going to thank you so much for that Toni. That's very important, and I'm going to try to bring this session to an end. There's no point in running on. We do have a lot more questions, but people must leave. But a couple of quick observations as we're... It feels like our backs are to a corner, and despite all the talk and blah, blah, blah that some people are talking about, you guys, all of you talked about concrete action. I've moderated many of these sessions and each of them is special, but this to me was a sensational panel, because everything was so practical, and Toni was very much a plumber-to-plumber conversation.

And Andres, we included you in our plumbing company in this one. And you know what? We are facing some hard brakes. Brakes as in brake of a car since we talked about EV. So, some are slowing us down, India, China for varied reasons. Very good reasons. Ceyla talked about environment climate justice. Well, it's one thing for advanced industrial countries to have carbonized the world since the late 1800s, it's another thing for 40% of the world's population today. Two countries that represent 40% of the world's population today say we need more time. But these issues are going to go on, and you give us hope that some of the best minds are working on this. Thank you so much. This was fantastic. You really kicked ass. Namaste, and we hope to see you again in another Toronto Centre. You bet. Bye-bye.