FREEDOM OF MOBILITY

FORUM LIVE DEBATE MARCH 29, 2023 FULL TRANSCRIPT

# PART 0-1

[00’42] Hello, and welcome to this first edition of the Freedom of Mobility Forum Live Debate. My name is Cecilia Edwards, and I will be your moderator for today's event. The Annual Freedom of Mobility Forum is designed to be a public place for debate, that allows diverse expert contributors representing academia, public institutions, civil society, the youth and the mobility industry, to bring fact-based perspectives to the table, to spark a dialogue on how to protect our collective freedom of mobility, while simultaneously mitigating climate change.

[01’21] Each year, the forum will grapple with one aspect, one topic of this complex issue. This year's topic is, In A Decarbonized World, Will Freedom of Mobility Be Affordable To A Happy Few Only? The discussion will be rich and fact-based. In order to allow you to digest all of the information that will be shared following today's debate, the forum will publish an executive summary of the discussion and the suggested actionable steps for stakeholders to implement in their respective disciplines.

[01’57] I'd like to quickly provide an overview of the three foundational tenants of the debate, before introducing you to today's speakers. The debate will be fact-based, transparent and respectful. The forum will rely on facts to drive insights and possible solutions. The debaters are

free to bring their own unique perspectives. The attendance for the debate is open to all. Attendees will have an opportunity to ask questions of the debaters. And the discussion outcomes are made available to the greatest number of people. Debaters, and attendees will engage in an honest, respectful and collaborative manner.

[02’36] Now, our panel of debaters. For this first edition, we are honored to welcome six panelists from various regions across the world, who will debate during these two hours. Each of them represents a stakeholder related to the theme of our debate. Let me introduce you to them. [02’53] Måns Nilsson. Måns is the Executive Director at the Stockholm Environment Institute and Professor of Practice at the Royal Institute of Technology. In recent years, he has been closely involved in the development and implementation of the 2030 agenda as an advisor to the UN, OECD, The European Commission and the Government of Sweden. Welcome Måns.

[03’20] Yamina Saheb. Yamina is a lead author of the Intergovernmental Panel on Climate Change World Group III, Mitigation of Climate Change Sixth Assessment Report, published in 2022. She is currently a senior energy policy analyst at OpenEXP, a global network of independent experts, developing solutions to achieve the sustainable development goals. Welcome Yamina.

[03’47] Ben Welles. Ben Welle is the Director of Integrated Transport and Innovation at the World Resources Institute, Ross Center for Sustainable Cities. His work includes leading global research and projects, particularly in the areas of public transport, minibus services, mobility planning, access to opportunities, new mobility and innovation, traffic safety,

walking and cycling, and public spaces. Welcome Ben.

[04’18] Temi Salami. Temi is a climate education and communications professional. She is the founder and executive director of EcoChampions, one of Africa's largest networks of young environmentalists and activists, leading environmental change through climate

education, leadership and advocacy. She has spent the past five years leading a group of over 200 young environmentalists across Africa. Welcome Temi.

[04’47] Devesh Shah. Devesh is the CEO of Grassroots Trading Network for Women, an Indian NGO whose mission is to provide energy access, financial inclusion and

empowerment to poor women members of the Self-employed Women's Association. Welcome Devesh.

[05’08] Carlos Tavares. Carlos is the Chief Executive Officer and Executive Director at Stellantis, a sustainable mobility tech company that is home to 14 vehicle brands and two mobility service arms. He focuses on Stellantis' objective to provide clean, safe and

affordable mobility, while driving the company towards an ambitious carbon net-zero target by 2038. Welcome Carlos.

[05’38] Before we start our questions to the debaters, I would like to ground us in the key

facts and figures that help shape the formulation of this year's question. In a decarbonized world, will freedom of mobility be affordable to a happy few only? First, the concept of de- carbonization and the connection to mobility.

[05’59] Transportation is the second-largest contributor to global greenhouse gas

emissions, behind only the electricity and heat sector. It accounted for roughly 17% of all global greenhouse gas emissions in 2019, and has grown faster than any other end use sector between 1990 and 2021. The demand for transport is expected to continue to grow across the world in the coming decades, as the population increases and more people can

afford cars, flights and trains. So in order to comply with the 2015 Paris Climate Agreement goal to limit global warming to one and a half degrees Celsius by the end of the century. It is estimated that there needs to be a minimum of a 3% annual reduction in total CO2

emissions from this fast-growing sector.

[06’57] Second, what do we mean by freedom of mobility? It is the ability and the means for individuals to get access to the people, the goods, services and opportunities necessary to satisfy their required and their desired life needs. Access to infrastructure, vehicles and

public transport are all important parts of mobility. The over one billion people globally, for example, who according to the UN in 2021, did not have adequate access to an all-weather road, would be among those who are facing their freedom of mobility challenge. In a

different manner, those to whom borders are closed due to the type of passport they possess are equally challenged.

[07’46] Finally, a few facts regarding affordability for the happy few. People's capacity to

travel is generally linked to income. As income increases, people become more mobile, and they make choices to spend more on carbon intensive transport goods and services.

According to the World Bank, those in higher income brackets can spend up to three times the amount of those in lower income brackets, 15% of their income versus 5%. In a different study cited by the UN, in some of the poorest parts of the world, even public transportation can be out of reach for some, costing as much as 20% of their income.

[08’32] So now that we finish dissecting our question, let the debate begin. We will proceed with three rounds of questions. The first round will cover an understanding of the facts. The second will address challenges. And the third will touch on potential solutions. These three rounds will then be followed by questions from the audience. Please feel free to use the box on the right side of your screen to type your questions in at any point during the debate.

# PART 1-1

[00’00] So now let us understand the facts.

[00’16] During this first round, I'd like to tackle three topics. What individual and collective mobility really costs? How socioeconomic and geographic status impacts access to

mobility? And third, how the concept of freedom of mobility varies around the world?

Yamina, I'll ask you to kick us off. I'd like to start by talking about cars. Car dependency has been a dominant factor in much of our mobility solutions for nearly a decade. What has been the impact of that?

## Yamina Saheb:

[00’53] Good afternoon. Thank you for your question. So as citizens, our need is mobility need. And the answer that has been provided by government since the first car is car dependency. So instead of answering to our challenge, our mobility need by providing

variety of solutions, the main solution that has been provided in developed countries has been, and is still, mainly, car dependency. This has at least three impacts. One is the impact that you mentioned, which is the contribution to global warming. And contribution to global warming has an impact on health of the people.

[01’44] So it has an impact on... We are unhealthy, we live in unhealthy places because of the road transport. And then it has an economic impact because to allow for car

dependency, our governments have been investing for several decades in infrastructures for these cars. So more roads. By investing in more roads, we increase biodiversity losses and we increase the unfair share of space. There is much more space. The allocation of space... Especially in cities, there is much more space allocated to car dependency to address the issues that are raised by car dependency than space, for example, for walking or for biking. [02’32] So this is an unfair share of space. And then this has a direct social impact, which is mobility poverty. Mobility poverty is the fact that people, and especially low income

families, cannot access to the basic services unless they use cars. And this has an impact on their affordability of their movement. So car dependency has failed in making, what you call here, mobility freedom, mobility freedom. So it has been completely the opposite of what we are talking here about.

## Cecilia Edwards:

[03’12] So thank you, Yamina. Mans, would you like to talk about the space commen

## Mans Nilsson:

[03’22] Yeah, I'd like to start with just giving a short comment on the issue of why transport and mobility is so challenging. There are three things. First of all, it is the fastest growing sector of emissions, when we are in a place where we need to actually decrease emissions in order to reach the Paris targets. It is also the most fossil fuel dependent sector. And

thirdly, it is the most locked in of our sectors. So infrastructure, cities, everything as has been said is locking us into a car dependency. And this makes the sector... Although it

today represents, as you said, 17%, but roughly 20% to 25% of CO2 emissions, 70% of total greenhouse gas emissions. Really the most difficult and challenging sector of all.

[04’28] Now we are in a place where we have electrification in some places of the world. For example, in my country we have around 30% of vehicle sales are now fully battery electric

vehicles. In the EU, it's around 12%. I think in China, it's around 22%. So it's happening now and we're moving very quickly off the S-curve. So we are going to have a very rapid

development in this arena over the coming years. But it's opening up new challenges of affordability and accessibility of transport. But we'll come back to those challenges in a little bit.

## Cecilia Edwards:

[05’19] Okay, thank you for that Mans. Now I'd like to ask Carlos a question. So given the current dominance of cars as a primary form of transport, what kind of transformation is the mobility industry going through today to become more sustainable and affordable?

## Carlos Tavares:

[05’37] Well, thank you Cecilia. It's indeed a very deep transformation. I would say it's a Darwinian transformation. As we can easily understand that within a few years, mobility companies will not be allowed to operate if they're not carbon-neutral. So this

transformation is really a Darwinian one, that's no doubt about it. What is also quite obvious is that the solutions that we are trying to bring as an industry mostly about electrification, as Mans was mentioning.

[06’10] I'm not going to be solving all the problems. And I was listening to Yamina saying that in urban areas, we are devoting too much space to the car, which she qualified as being unfair. In that case, electrification will not solve that problem. So we have to make the

breakdown between urban areas and rural areas in terms of solving the mobility problem for the citizens. What I would say is that recognizing the 17% that Mans was mentioning, it is indeed opening the door to a very complex problem to solve. It's not only about the mobility devices, I would say those ones are already on sale. We know that they are heavy, we know that they are using a lot of raw materials and we have to save weight for the future.

[07’03] But as you mentioned in your introduction, we have to solve the energy problem. The energy problem is the foundation of any clean mobility for the future. Even if we think about rural mobility using cars, you will have to deliver a clean energy to support that, and that is the foundation of everything. Then on this foundation of clean energy, you can put clean

mobility devices if they are affordable so that the highest number of citizens can buy them. And with that, you will be able to solve a certain kind of problem, but you will not solve the problem of urban areas. Eventually, urban areas and rural areas may need different

solutions, and perhaps, countries from the north and countries from the south will not look at this problem in the same way because the available wealth to solve this kind of issues is not the same.

[07’59] So indeed a very Darwinian transformation for the mobility industry. Indeed,

potentially different solutions for urban and rural areas, but there is a common foundation

for all of this, which is clean energy. Without clean energy, most of this electrified solutions would not bring the expected benefits.

## Cecilia Edwards:

[08’21] Thank you. Carlos. And Devesh, both Carlos and Yamina commented about space

uses, and then Carlos mentioned the difference between urban and rural areas. So when we think about the poorer communities and rural communities, what is important regarding

access to mobility from your perspective?

## Devesh Shah:

[08’44] Namaste. And I would like to start with the 17%. Somehow this is a very interesting number. I would be very happy if you can get the pie chart of various continents, how it is

contributing to the 17%, and the details with respect to urban and rural. While we are talking about freedom of mobility, I also would rather change this topic little bit as freedom of

responsible mobility.

[09’19] Mobility, yes, we are having today, but I think it should be more of a responsible mobility. And in the world of poor women, for an artisan, access to raw material market, access to finished goods market, that is freedom of mobility. For a casual labor who is working in a field, access to the work area and coming back, that is a mobility challenge.

For a mother and child, access to school, access to healthcare is still a very big challenge in the developing and underdeveloped countries. And since SEVA is a trade union, we have a tendency to meet very often in person for all the union and organizing activities.

[10’06] But the challenges, like as you said... Since the availability of public transport itself is so low, the cost to that transportation is very high. In our side of the world, the cost goes up to 35%, and that is indeed very appalling and it is very discouraging. And therefore, I

would rather say that for poor communities, when we are talking about this alternative energy sources, it is very important that we don't focus on things like cars because there is one driver and three empty seats. We rather should focus on electric bicycles or electric public transports, which can have a better bang for the buck.

## Cecilia Edwards:

[11’07] Great, thank you, Devesh. I think it's important to understand that point you just

made, that when we talk about mobility and we talk about transport, it does not equal cars. And today we should be thinking much more broadly. So thank you for that.

Temi, the needs of young people are unique. Can you touch on that and explain a little bit how that varies from the mobility needs of adult men and women and families?

## Temilade Salami:

[11’35] Thank you so much. I would like to start with saying that our realities and behavior towards transportation and mobility is very different from what we used to know. As a

young person... I think I can speak for a lot of young people. Personally, I love to take public transport. I love to feel safe in a public transport because I can use my phone, I can work, I do other things while someone is just at the steering of the wheel. And it's very important to understand that the times and methods have shifted. [12’12] So rather than bringing in

solutions that just affect select few, it's very important to note that we can create solutions that can affect the masses, and also bringing affordability when it comes to mobility.

Because as a young person, I'm not really all about getting my own personal car. I really just want to move from point A to point B in a sustainable way, and in a way that doesn't break the bank.

[12’41] So our needs and behaviors are very different. In those days, our mothers, our fathers, they had cars. But right now, a lot of young people always lean towards new

technology. We are very quick to adopt new technology, and anything that works for us in a sustainable way that doesn't break our pockets, works for us. So the behavior and trend patterns are so different. And our needs are also different because we want to travel for

opportunities. I personally want to travel for opportunities, for employment, for social life. [13’13] My family could be living in another state and I want to visit them. So the needs are very different and they're quite concrete and it's very important that every solution that we

have brings in into context, the realities and the needs of a lot of young people, because the times are different and our needs and behavior trends are also different.

## Cecilia Edwards:

[13’33] Thank you Temi. And I think from that we also have the reminder that when we talk about mobility, it's not really about the mode, but it's about the movement. It's about the need to get from one place to the other, and linking that back to what Devesh commented around, doing all of this responsibly. So thank you for that.

Ben. Understanding that some countries are highly motorized and others are still in the

process of motorizing. What types of mobility needs exist for the countries that are still in that motorized phase?

## Benjamin Welle:

[14’06] Sure. Thanks Cecilia. First of all, I want to thank you for the invitation to participate in this great event. I want to also say I'm with World Resources Institute, which although I'm located in Washington DC, we work globally in countries like Brazil, Mexico, India, China,

Indonesia, and in the African region on many issues, but specifically on improving sustainable mobility.

[14’35] And I just wanted to note a sort of shift the conversation of whether this is about

freedom of mobility, or whether maybe a similar way of thinking about this in providing zero carbon safe and reliable access to opportunities, the jobs, the education services, and the like that give people economic opportunity. Which just is, how do you get from point A to

point B? And one statistic that hasn't been mentioned, yes, we do have 16%, 17% of global carbon emissions from transport, much of that coming from wealthier countries, although growing in low and middle income countries. But the world sees about 1.3 million road

fatalities per year.

[15’31] If we look at regions like Africa for example, this is the number one killer of young people in these such regions. And the reasons for this is because we aren't providing the adequate public transport systems, safe conditions for walking and cycling. Urban land use and growth patterns that support walkability and that compact access to services and the like. So when we get to this freedom mobility, I think we have to ask, how do we combine

efforts to not only decarbonize, but to make our transport systems safer and more resilient to what people need to access these jobs and opportunities.

[16’29] So I would say, invest in public transport, invest in better bicycling and walking,

invest in better urban growth patterns. And I'll just end on the fact that IPCC just came out with this last report that says we're already at 1.1 degree warming, and they've actually specifically said the most cost-effective measures that we know of are in fact investing in public transport, safe walking and cycling conditions. I'll end at that. Thank you.

## Cecilia Edwards:

[17’00] Thank you Ben. So each one of you have brought up a number of issues. We've talked so far about decarbonization as a goal. We've talked about space, we've talked about cleaner electricity, we've talked about the idea of mobility, being responsible. We've talked about mobility not equaling cars and moving back and forth. And we've talked about safety. Before we wrap up this phase, I want to turn it over to the debaters and see if anyone has any additional comments that they'd like to make, respect to the facts. So Carlos, why don't you go first.

## Carlos Tavares:

[17’42] On this discussion with my teammates here, which is the fact that the different modes of transportation that we have been talking about, public transportation, cycling,

whatever we have been talking about as opposing modes of transportation against cars. In fact, those modes of transportation are not new. They exist for a long time. Perhaps we

could argue on the electric bicycles, but for all the other ones, they are competing with cars for at least one century. So the question that we are not raising here is, why did the

automobiles win that competition?

[18’26] Why did people select automobiles instead of selecting global transportation or

public transportation or even bicycles? And that's a key question that we are not addressing here, but the citizen and the consumer at the end of the day has a say on that matter. And

of course, it'll quite quickly bring us also to affordability and to convenience and comfort and safety, at the end of the day, also security.

[18’53] So those are some of the topics that we are not addressing here, but that should be taken into consideration when we say, "Well, there is too much of this and not enough of that." That's clear. But those two things have been competing for the last century. So what we are seeing today is the result of that competition. And if it happened that way, possibly it's because there were some key reasons that we need to understand if he wants to unlock it the other way around.

## Cecilia Edwards:

[19’20] Thank you for that Carlos. Yamina, and then Devesh will have the last word on this

one.

## Yamina Saheb:

[19’26] Yeah. I like very much the question from Carlos, why did the automobile win this competition. For very simple reason, because it's an unfair competition and you are very good lobbyists. So you managed to convince governments to stop the tram systems, the

public transport system and to invest in more roads. And then there is an alliance between the car industry and the infrastructure industry because you make profit out of more cars, and more cars means more roads and less of public transport. And given that everything has been privatized, everything became privatized, and we completely, our governments have been brainwashed.

[20’06] And even ourselves as citizen, we are brainwashed, and we are not free. If you look at the advertising for cars, it's always sold to us as more freedom. But actually it's not

freedom, it's a locking effect. You are locked in your car, you are locking the planet in more global warming, and you are locking yourself in more pollution at high cost. And if you are low income, then you are locking even your income in the car dependency. So yes, the

automobile industry has been very, very successful, but using unfair methods.

[20’42] And from moral perspective, if there is in the future, if the young generation given global warming would sue us, all of us, those who contribute directly or indirectly to the

current situation. I guess the car industry and the infrastructure industry will be among the people who would be sued in the future. And we should not look as to the success of the

car industry, we should look as to how to address human needs. And the car industry does not address human needs. It created car dependency with all the problems that are

associated with the car dependency. It's really time for the car industry to acknowledge its failure in being an actor for development, an actor of the 20th century and a good actor for the 21st century. And if the car industry does not do that, so it'll be left behind, which is the case today. The car industry is behind the challenges of the 21st century.

## Cecilia Edwards:

[21’44] All right, thank you for that. And then Devesh, I'm going to let you have the last word in this round.

## Devesh Shah:

[21’50] Just to build on the existing conversation. I would rather also touch upon the point that the infrastructure for the public transport also needs to be developed. In India, a lot of rural places, even if we think of public transport, the roads are not supporting the public

transport. And therefore, we cannot separate the transportation and the infrastructure that supports the transportation. We need to look at it together. Otherwise, we will end up having vehicle, but no infrastructure structure to support it.

[22’24] And another topic which we have not touched upon is... In near future, we are going to have more and more unmanned vehicles or drones and the regulations pertaining to that. Because when we are talking of mobility, we are not just talking of human being, we are also talking about the raw material and finished goods that can transport. Now if I am thinking of a future where unmanned vehicle or a drone can do that, the lot of regulations pertaining to that needs to come up, which will optimize the overall travel.

Cecilia:

[23’00] Great. Thank you for that Devesh. That concludes our understanding of the facts phase. I think we're set up very well to move into our discussion, our next discussion.

# PART2-1

[00’00] It's time for us to talk about the challenges.

## Cecilia Edwards:

[00’16] During our second round, our three topics this time to address will be whether there is a potential right balance between traveling faster and farther, and the cost for the people and for the planet. How the actions of the happy few impact the freedom of mobility of

others, and whether universal freedom of mobility is desirable.

Carlos, we're gonna start with you first this time. As we shift from fossil fuels to electrification, will our planet be able to provide enough scarce resources to ensure sustainable mobility for its 7 or 8 billion inhabitants?

## Carlos Tavares:

[00’55] It's indeed a question for which I am afraid we don't have the answer yet. What is clear is that the scarcity of resources and the fragmentation of the world with regional regulations, which are not global regulations, may have an impact in the cost

inflation of raw materials. And that is going to bring us back to the affordability question that was raised previously, even in a clean, safe mode of mobility, which has been

discussed and the goal for the industry.

So assuming that it is clean and safe, how do we protect affordability and how do we bring this mobility to the highest possible number of citizens is going to be, it's going to be the big challenge.

[01’46] Right now the affordability is not there because the raw materials are scarce and very expensive, and I would add very volatile. So it's going to be a significant challenge

starting with lithium, but not only on lithium because so far, research is so vivid that we can anticipate that the chemistry of battery cells for electric vehicles is going to change over the next few years, and rightly so, to reduce the overweight of EVs and bring the weight and cost of batteries to a more reasonable number. So we don't even know today what will be the final raw materials that will be needed from those efficient batteries that will come by the end of this decade. For the timing, we know that we need lithium. We know that we are not producing as much as we need. We have right now 1.3 billion cars, which are internal

commercial engine powered on the planet.

[02’49] We need to replace that with clean mobility. That will need a lot of lithium. Not only the lithium may not be enough, but the concentration of the mining of lithium may create

other geopolitical issues. So what we should say here, Cecilia, is that not only we don't know yet what will be the final raw materials that we will need because right now, this

research is still at the beginning. We are just starting this new industry, and therefore, we don't know what the final raw materials will be. But if we were to know those materials, and if we take the example of today's lithium, we can anticipate that fragmenting the world with local regulations is going to make things more difficult in terms of protecting the

affordability of those raw materials that will then protect the affordability of the mobility tool, which is what is coming out of the western world regulations.

[03’47] The western world regulations have already decided what is the appropriate technology. It is not the car makers that decided to go electric, it's the regulator that

decided to go electric, which then brings the question of energy. Is it clean, is it abundant? The question of raw materials, is it abundant, or are we fragmenting the world in a way that is going to make it scarce and therefore impact affordability and therefore impact the

positive effect on the global warming fixing? This is what we can say and we could also say the same for the rare earth elements that we need in our electric motors, which are also

scarce resources, for which the total amount of availability on this planet is yet to be discovered.

## Cecilia Edwards:

[04’34] Thank you for that, Carlos. Mans, I want you to jump in here. How do you think the increase in climate-friendly transport is affecting its accessibility?

## Mans Nilsson:

[04’46] Yeah, I think this is the key question. You know, there are several ways of addressing transportation contribution to climate change. We have efficiency. We've had done a lot of work in different modes, including cars in improving efficiency. We have shifting modes to public transport, walking, cycling, et cetera. We have bio-energy, we have electrification. But the challenge with electrification is the accessibility. And if I focus in a little bit on that, if

we look here in northern Europe for example it is the social demographic groups that are higher risk for poverty and social exclusion.

They also hold the largest share of transport emissions of CO2 today. And this is also because people that live in less densely populated areas are more dependent on cars and don't have other alternatives.

[05’41] So for example, policies like banning internal combustion engines would be highly problematic for these groups. And electric vehicles have to get much cheaper to be

affordable for these groups. And I think in rural areas, of course, there are developments with battery developments that will help address the concerns about range. But there is also a kind of global dimension to this. Now the EU and the US is pushing kind of new industrial policy and climate policy together with the Inflation Reduction Act and the

European Green Deal and the clean industry regulations, it is about French shoring and securing value change and pushing very hard on kind of taking care of the resources, for example, recycling the batteries in the cars. But we should know that according to, for example, the United Nations, 60% of all cars that are imported to Africa today are used

vehicles. And when we tighten the rules on regulations such as reusing materials, it can actually mean reducing the flow of these cars that are providing more affordable mobility.

[07’03] And it's also slowing the uptake on electric vehicles in these countries, which also means we're not spreading the benefits of clean, local, better air quality, for example. So there are these risks of unintentional side effects when we're forcing things like recycling instead of second use due to the EU developing policy that are kind of closing down on

trade and regulate. So it's a very complex issue actually, how the global inclusion of more clean, affordable mobility will play out in the current industrial climate.

## Cecilia Edwards:

[07’47] Thank you for that. And if I connect that back to between what Carlos said and what you just said, we're talking about a need for more inclusive thinking, right? Carlos just

mentioned it's not just about the electric vehicles, but we need to think about our energy

sources. And you mentioned our need to think about actions that might actually benefit one part of the world actually have a negative consequence on others, making it difficult. So we see that our inclusive thinking is what's really important as we wrestle with this topic.

So Temi, I'd like you to jump in. What are the implications around the world of the relatively high levels of mobility that exist within developed countries? Temi, we can't hear you.

## Temilade Salami:

[08’40] Sorry. According to the UN habitat, over 92% of the EU's population has convenient access to public transportation. Realities are not the same for every country, for every

continent. For example, in Africa, that number just goes up to 32, and in Asia, it's just about 58%. So while there is a group or set of people in certain countries who have access to these things in a high rate, and then there is a side effect to the usage of these things,

another continent is bearing the brunt. So the implications for these things is that while it is being used in certain places in a very, you know, consistent way that produces different

effects, the effect is not just in that location, it's also in different locations in Asia, in Africa, and different parts of the world. And the issue here is that we also have the case where the development issues in these certain continents or the least developed countries, they're

different.

[09’54] We're still talking about access to health, access to food, access to employment. So some of these issues are probably not on the country's agenda, 1 to 10, right? So when

we're talking about these things, the implications sometimes is the fact that these countries bear the brunt and don't have the capacity to be able to manage and adapt. And the other thing is that when rules are made,

when treaties are being signed, it doesn't put into consideration the realities of these people.

[10’24] So we're talking about carbon emission, decarbonization, but we forget that they might not have the capacity to be able to create these solutions that the world has put in place or even move up to the ladder of the solutions that have been put in place. So when

we're talking about mobility and decarbonization, it's very important that the human side is being put in consideration because the realities of a young African is very different from the realities of somebody from developed countries

based on access to mobility and increased access to other alternatives that are probably expensive that's not that affordable in other continents.

## Cecilia Edwards:

[11’05] Thanks for that, Temi. And Devesh, what are the conflicting objectives in poorer communities regarding mobility?

## Devesh Shah:

[11’12] Thank you for that interesting, but difficult question. The first point that I would like to touch upon is that the poorer communities have to shoulder the responsibility of clean

climate, right? Like all of us because we also heard one of our friends telling that the future generation might sue us, that you didn't give us a good earth. So it doesn't matter

developed countries or developing countries, rich country or a poor country. All citizens are forced to share the responsibility of clean climate. But in rural side, the problem is that the right mode of mobility itself is not available.

[11’59] So on one side, we are putting the responsibility on them that you need to have a better earth, but we are not giving them the right mode of mobility. So that is one

conflicting objective. Second thing, responsible mobility versus excess transport. Today we can see that whether it is goods or people, there's excess transport that is happening. If we develop local economies, why do we have a necessary to even transport so much? I develop the local economy and I have a circular economy of energy and economy that will ensure that I have only bare minimal mobility. Whereas we are looking into moving things of huge

volume from one place to another. Now last point, the biggest conflict that we are going to face is that vehicles dumping.

[12’56] I think we partially touched upon it, developed countries to developing countries. Developed country is going to get into smarter vehicle energy wise, that all the production lines that are still existing, they are still going to make vehicles, and that will be pushed to developing countries or underdeveloped countries. Similarly, in urban areas, we will have more electric vehicle, and the fossil fuel-based vehicle will be dumped in the rural area. So that is going to be a very big dilemma. So the fundamental question comes back is that is there really a freedom of mobility or we are forced to choose between whatever is the

unoptimized solution in the name of mobility.

[13’39] Therefore, all our solutions must have basis on right to, like we have right to speech, we should have right to responsible and gender-inclusive mobility. Because in India, women don't get enough mobility options either. It's the men who have the vehicle. So that is also a very important angle that gender inclusion we need to bring into this responsible mobility. With that, I end my...

## Cecilia Edwards:

[14’07] Thank you for that, and that's an interesting perspective that we haven't talked about yet.

We talked about geographic differences, we've talked about socioeconomic, and youth, but we haven't necessarily talked about gender. So appreciate that.

So Ben, what are some of the broader life implications of freedom of mobility in the countries that you've studied?

## Benjamin Welle:

[14’26] Yeah, I will go back to my sense of how do we provide freedom of mobility. And I think what we at WRI often tell is we need to provide more access to opportunities, jobs, education, healthcare services. However, our research has showed that in cities like

Johannesburg in South Africa or Mexico City, up to half or even more of residents do not have access to these opportunities without having to travel more than 60 minutes. So that's a huge chunk of time out of people's days. Now time is both money and sacrifice of not being able to care for others, for family, visiting friends, reaching your job and other

economic opportunities.

[15’20] So this has actually a key connection, however, with the elements I mentioned earlier, reducing those 1.3 million road fatalities we see every year, reducing carbon

emissions on the road. If we can provide more equal access to opportunities through public transport systems, safe walking and cycling conditions, and yes, some room for mobility for the private car, but not a dependence on the private car. I'll just note one final statistic, and that's that the carbon budget that we have, right?

[16’00] So we're seeking to basically phase out internal combustion engine vehicles by 2035. These are new regulations being put down by several countries. However, I mention again the IPCC report, we're already at 1.1 degrees warming, we're at 2023 right now.

What's gonna happen by 2030? We do not have enough time because it takes time to turn

over vehicle fleets, and it also takes time to clean up energy sources. Because of this, there needs to be significant investment in increasing support for public transport systems,

cycling, and walking. These are solutions that we have had for years that are low carbon, and by doing so, we can increase people's equal access to opportunity as well as make conditions safer for people using streets, not just a few.

## Cecilia Edwards:

[17’03] Thank you for that, Ben. Something interesting that you talked about, the 60-minute commute. It's quite interesting that in some developed countries, in urban areas,

people are making choices about where they live to use carbon-intensive transport for

longer and longer commutes. So very interesting when it's a choice versus when it's forced in terms of how much mobility you have. Thank you for that.

Yamina, is freedom of mobility something that we should consider as desirable, or is it something more?

## Yamina Saheb:

[17’38] Mobility should be a right for all of us, no matter how much income do you have. But then the answer to this mobility, again, as shown by the experience in developed countries in the last century, is not by individual cars. So it's definitely not the answer. And what

usually we discuss is the technological improvement of the cars, but this is the solution that exists already. So either moving to electric cars, the electric vehicles or improving the efficiency of the existing vehicles, things like that.

In the last IPCC report, we introduced the concept of sufficiency. Sufficiency is all the policy measures and the daily practices that evolve upfront. The word upfront is not in the IPCC definition, but it means upfront, we meant upfront the demand for all natural resources

including energy, material, water, and land, while providing wellbeing for all within the planetary boundaries. Unfortunately, sufficiency policies are lacking in most of the climate policy packages that we have

[18’45] In the NDCs for example, you don't have NDCs, that's nationally determined

contributions that governments submit and the (indistinct) framework. They are lacking

sufficiency policies. But we do have some examples about how to make more mobility, how to deliver on mobility as a right. So in Paris City for example, Paris City started working on new framework which is the 15 minute city, 15 minute city, this means all the basic needs are accessible to you in 15 minutes. In 15 minutes, you don't need a car for that. So it's either by walking, by public transport, or by cycling. But to do that, this means that the city has to invest in reshuffling the city because Paris City was first designed without cars

because it was designed before the car industry was here. And then it has been reshuffled for the car industry given that France is a producer of cars, and now the city is reshuffling again, its public investment to make the city, to modernize the city because this is the way to modernize the city.

[19’58] The 21st century is not about more cars. The 21st century is about more people in cars, and this means less cars. And this means there's profit for the car industry and the infrastructure industry. And this requires a paradigm shift in the business model for the

current players. And this is...

We are locked, in developed countries, we are locked in the car dependency solutions and that's why we try to improve the car dependency solutions. But the car dependency has so many negative impacts that we should get out of the car dependency and we should avoid locking the rest of the world in car dependency in our model because by locking the rest of the world in our model that is not sustainable model from environmental perspective, social and economic perspective, then the 1.5-degree target will be out of reach. So my point is that make mobility a right in all countries and rethinking mobility first as need, and then we can look to the solutions and try to improve the solutions. And more cars is not for the 21st century.

## Cecilia Edwards:

[21’10] Great, thank you for that, Yamina. And before I wrap up this, I would like to open it up again to the debaters. Mans, will you start us off with comments on this?

## Mans Nilsson:

[21’22] Sure. We talk a lot about the need to find another mobility paradigm so to speak. And I do think that there's a point there that our 20th century western mobility paradigm with personal cars in the centre might not be the paradigm of the future. And we see that

among young people today, also in western society and amongst young people in the global south in many places where we have a bigger ecosystem of options outside just the

personal car with buses, minibuses, three wheelers, et cetera, bicycles when we see it in cities such as Nairobi and New Delhi. But we also see how cities in Europe, for example, make it more and more difficult to have a car, commute with a car into the city, which is obviously shifting the balance of when you make your choice, so to speak.

[22’28] So if there's nowhere to park, people would need to find other options. And I think this is a trend that we are gonna keep seeing also because of the space that we had in the first intervention, you know, the space of the city, what is it used for? And the value of that space is more than just being a sort of deposit for cars that are not running. So I do think there's a real need for personal individual cars also in the future, but I think we are in the

process now of having a more balanced view, and I think the generational shift and the shift to the rapidly growing cities around the world is sort of accelerating this change.

## Cecilia Edwards:

[23’20] Thank you for that. Carlos, why don't you jump in?

## Carlos Tavares:

[23’24] Yeah, thank you. Thank you, Cecilia. I just would like to comment on a couple of things. First, from Davesh’s comments, I think we should not forget that mobility is about access to health, education, and jobs. And while I clearly support the fact that you can find solutions for the urban areas, we should be mindful of the fact that still 40% of the world population is not living in urban areas so far. So you can imagine specific solution for the

urban areas, but if you are talking about rural areas, access to health, to education and jobs needs possibly a different way of addressing mobility needs.

[24’10] I don't think that humanity is ready to give up on individual mobility. I don't think there is any consensus on that. I think that we just have to find the ways to keep that

individual mobility safe, clean, and affordable from one side, recognizing that if in the urban areas we want to give back the space to the pedestrians and the cyclists, that's very fine because indeed you can access many things with a highly dense area of population, that's possible. It may not mean that this is the best way to enjoy life, but that's what can be in the mind of some people. But in the rural areas, you still need to address the individual needs to access health, education, and jobs. And for those needs, you have to find a way to make it clean, safe, and affordable at the end of the day.

## Cecilia Edwards:

[25’06] Thank you. Yamina, I think you wanted to jump in again?

## Yamina Saheb:

[25’10] Yeah, I would like to jump in about this rural area issue because we usually think about public transport only the way we know it in cities. So you have metro, you have tram, you have buses, et cetera. But actually there are solutions already implemented to address the mobility needs in rural area, which is, for example, carpooling that provides the same

service like the public, the metro service that you have in cities. So there are these solutions that already exist, already implemented.

[25’41] So for example, in France, there is a company like Eco, for example, who is already providing these solutions in rural areas. So it's not because you are located in rural area that your mobility needs will be hindered. They are hindered today. Today the problem, all

the mobility issues are related to the fact that we made car dependency as a solution as the main answer to our mobility need. This is the challenge that we have, we need to get out of this paradigm, and it applies for urban areas, it applies for rural areas, it does not apply in the same way, but there are solutions for both type of organizations.

# PART3-1

## Cecilia Edwards:

[00’00] So, are you now ready to explore some solutions?

[00’16] In this, our third and final round, before we take some questions from the audience, we will discuss potential solutions that we might undertake to make freedom of mobility

affordable to the largest number of people possible. We will cover individual CO2 emissions quotas for mobility and consumption, the influence of government policies on the

accessibility and affordability of mobility in the long-term, and the different means of standard mobility accessible to all.

[00’46] Temi, let's start with you this time. The concept of emissions quotas are often surfaced as a possible approach to forcing people to change. How might the concept of emissions quotas be applied in a manner that motivates people to be engaged and beneficial behaviors instead of punishing them?

## Temilade Salami:

[01’09] Thank you so much, Cecilia. I think first of all, we need to chat back and understand that, like I said earlier, the realities are different. So what applies to country A doesn't apply to country B. So when we come up with emission quotas, we should realize that there has been different people who have contributed to it in a different way, and one generation

should not suffer for the menace of another generation.

[01’37] So I think one of the major solutions is to bring it down to the fact that we are all humans. We have needs and our needs are very different based on how we've grown up, based on our location. So any solution we are providing when it comes to de-carbonization on emission quotas should take in the needs and realities of different countries, different

regions, different age range, because our needs and behavior patterns are very different. I think that is the first thing.

[02’05] Secondly, based on my experience attending different conferences that has to do with climate change, I see that most solutions just focus on certain places, focus on the realities of certain places. And it's very important that when these solutions are being

drafted, when these solutions are being talked about, the mostly affected people should be at the table, and should be able to contribute so that everything is holistic.

[02’30] I think the second thing is to also bring it to the fact that everything is in

intersection. So mobility is connected to health. Mobility is connected to employment,

mobility is connected to social life. So if you say that we need to bring in clean energy into certain countries, the first question that should be on our mind is this affordable? Does this fit in the realities of the people? And is very, very important to always bring it to context of every place we're trying to provide solutions.

[03’02] So first things first, we need to be human with our solutions and be very realistic with the needs of the people we are providing the solutions for. And the second thing is

when we're providing these solutions, we should bring the people who are mostly affected by the results into the room and also at the table, so that anything we're designing, we're not designing against the people we're designing it for. Thank you.

## Cecilia Edwards:

[03’25] Great. Thank you for that Tame. Ben, how might we think about mobility actions in

countries that are still sharply increasing motorization and at the same time have a need to meet emissions targets?

## Benjamin Welle:

[03’39] Thanks, Cecilia. I think we need to look at leapfrogging not to this auto dependency framework, but one of a multimodal shared electric mobility in cities and low and middle income countries that are seeing motorization happening. While also in motorized

countries, we need to reduce that VKT and shift to a shared electric mobility systems. But I will just say a couple of things. One example in India is where the governments and several cities have worked together to overcome the initial upfront costs of electric buses.

[04’22] Recently there was a tender that was provided for some 5,000 buses to be

purchased at scale, which actually brought down the price of electric bus below the price of a competing diesel bus. What the government now is looking at, could they even roll out up to 20,000 or more buses in second tier cities and incentivize the purchase of electric

buses?

[04’51] So here you're seeing the simultaneous investment in public transport, but also in electric mobility. I also want to say in other geographies, like in the African regions

specifically in say Uganda or Kenya, you see a very high use of motorized two-wheelers, and you also see dominance use of minibus systems, the informal public transport systems that are predominant in these cities. So how should we both look at electrifying things like these two-wheeler motorcycles that can, and the technology is there, and so how do we begin

scaling that up?

[05’39] There's some work that's already being done in that space, and I think focusing on financing of such vehicles is key. And then second, looking at these informal minibus systems. For example, we have worked with the French development agency, in fact on

mapping out and digitizing where public transport goes, where it stops, which has not even been known in the past.

[06’06] So how can we use this both to improve services and eventually maybe even link that to how to electrify such services. So it's not just about looking at say, public formal systems, but in many low and middle income countries, it's these informal systems that we really need to pay attention to. And just one final note, the nationally determined

contributions that countries make for the Paris Agreement WRI, we looked at those and we found that unlike other sectors like housing or sanitation, informal sectors are mentioned in transport. Informal sectors are not mentioned even though they are the dominant forms of transport in many countries. So let's look at the reality of what and how transport functions in these places.

## Cecilia Edwards:

[06’54] Great, thank you. It sounds like we need to think about re-imagining how we think about public transportation and not sticking with our old paradigms. So thank you. Mans, policy certainly plays a part here. What types of tools are there or should there be in a

policy toolkit that can incent the shift to EVs and ensure the broadest accessibility to mobility assets possible?

## Mans Nilsson:

[07’19] It depends a lot on the context and what geography you find yourself in. I think we can learn a lot from experiences in Europe and Norway and Sweden, Netherlands for example, where we've had price incentives of different kinds, tax breaks, support to public transport, support to charging stations. There's a big toolbox. But if we're looking at

specifically inclusion and accessibility in developing countries, I think the key policy measures that is needed is actually support to developing the local value chains for

vehicles that will simplify how we can introduce both electric vehicles as passenger cars, but also the multimodal shared kinds of vehicles that Ben was talking about.

[08’15] So I think we need to foster domestic innovation for these vehicles, but also find out the financing schemes, the infrastructure in terms of charging, et cetera. For example, the minibus fleets that Ben is mentioning, that's a perfect case for electrification really with a medium distance and a set route that you run every hour.

[08’47] It's a perfect case for electrification. So I think we know how to do the policies in highly high income countries and we now need to shift our attention to find out how the benefits of electrification and multimodal electrification can also be shared with in the developing world. And it's both a matter of coming to terms with mobility and also coming

to terms with air pollution, which is a tremendous problem in the big rapidly growing cities. [09’26] So I think we are now at the stage where we actually can start to use the industry know-how that we have in manufacturing. And we saw also, we heard about India, for

example, where you have domestic industries growing into this space now. I think we can

with a little bit of nudge and a little bit of incentives and a little bit of better regulation, also find those developments emerging, for example, in places like Kenya and Ethiopia.

## Cecilia Edwards:

Great.

## Mans Nilsson:

Thank you.

## Cecilia Edwards:

[10’02] Thank you for that. Devesh, what can the government and other stakeholders that actually control resources do to support the livelihood related to mobility within

communities?

## Devesh Shah:

[10’15] One word answer everything, but let's get into the details of it. I would like to split this question into two. One is national level and the state level government, what they can do. And the second part of the discussion is governments of various countries, how they can collaborate. There are two paradigms to this whole thing. So coming to national and state level government, there is an urgent need for action research on the needs of grass- root people in terms of mobility. What does mobility mean to them?

[10’52] Because many times we sit and come up with policies, we come up with solution in a different location, sitting in a different location, whereas the grass-root reality is totally

different from it. So it is very important that the last mile connecting organizations or CSOs are involved in these action research, so that the good quality data comes out and the

failure for various schemes comes down.

[11’21] The failure chances for those schemes come down. And it is very important that whatever comes out in this action research be published globally, so that a lot of

intellectual people across the world can put their brains into it and make it even better. So this collaborative approach is very important. Second thing, clear guidelines on ensuring

responsible mobility. At the same time, how do we balance this rural urban dilemma?

Because suddenly we want the entire urban area to be e-vehiculised, but whereas in urban side, we are still pushing all the fossil fuel based vehicle.

[12’02] So that has to be a guideline that we cannot push the dump of urban to rule and just say the rule, people please live with that. Third one is mobility optimization. It is necessary that human and material [inaudible 00:12:16] be optimized, and this will have a byproduct benefit of post-production, post harvest wastage be reduced. Coming to the second part,

which is collaboration amongst various governments. For example, in Germany, the solar panel efficiencies shoot up to 32%, but in India we are still struggling with 13% and 14%. [12’40] Why is there no technology collaboration for that benefit? That is one example.

Second thing, it is important that we do customized pilots based on the geography and the gender to ensure scale up rapidly and in a sustainable manner, because the game is all about scale up and the scale up can happen only if there is a good quality pilot.

## Cecilia Edwards:

Great, thank you.

## Devesh Shah:

[13’04] So with that I give it to the group.

## Cecilia Edwards:

[13’06] Thank you for that. Yamina, now from the government perspective, what services should they ensure that citizens have access to as they define their long-term affordable mobility solutions?

## Yamina Saheb:

[13’19] Well, there is a framework called decent living standards, which include all the basic services that are needed and this is what government should be working on. And from

mobility perspective, it is first at the land use and urban planning policies that you create either freedom of mobility or car dependency. So this is the first step and usually this step is forgotten or not taken into account, is not considered. And we jump into directly to the solution trying to improve it.

[13’59] So if we do not go back, and this is what we in the IPCC report labeled as Sufficiency Policies, without Sufficiency Policies, we will not be able to address people's need in the 21st century. And we have enough empirical evidence from our techno solutionnisme

approach of the 20th century that is failure from environmental, economic and social

perspective. So we need to go back. Governments need to go back to what are the needs of the people that they must satisfy first. And then starting from there looking to the most

optimized solution later on and not starting with technologies. And fortunately today, our policies are mainly techno solutionnisme solutions.

## Cecilia Edwards:

[14’49] Thank you. That's interesting talking about the technology. In lots of other areas, we talk about people being starstruck by the latest gadgets. It sounds like that from a mobility perspective, we might be suffering from the same types of fascination with the latest and greatest technology. Carlos, what kind of levers do you consider as priorities for thinking about limiting CO2 emissions from transport while ensuring affordability for all?

## Carlos Tavares:

[15’18] Thank you, Cecilia. One thing that we should perhaps comment here, listening to my teammates, is the fact that if we are relying so much on policies from the governments, then we should start by saying that policies related to climate change should not be

competitive. We should not be using policies from any part of the world or any country to rebuild competitiveness in the country that is regulating that kind of policy.

[15’55] Policy on climate change should not be competitive, should not be a weapon to

rebuild competitiveness in a global trade approach. That's point number one. Point number two is that we are thinking about all of this in a very focused north-south dialogue. Northern people thinking about solution for themselves and thinking that they can use those same

solutions for the rest of the world, which then does not meet the affordability expectations.

[16’24] It has been mentioned by Temi, namely, it's important. It's also important to think that there are countries in the world that are finding their own solutions. And I would like to tell Devesh that there are now quite affordable EVs made in India for India for meeting a specific regulation that has been enforced by the Indian government. So it is clear that, that exists and the frugality that is coming out of India with electrified solutions for the Indian market may show the way to other northern countries that cannot afford any more the

mobility they have today. And finally, I would say here that we should recognize that one size doesn't fit all the problems. It is quite clear and that we have to think regionally, if not

from a country perspective, what are the needs of the country and the solutions that we can implement?

[17’24] Because many of the things we have been mentioning may for the next decade be related to utopia and not to real concrete pragmatic problem solving as it should be. So

what can we do moving forward? Of course, one of the ways is to make the clean mobility affordable and that means lighter. The most important lever to make clean mobility

affordable is to make the EVs lighter, which means about finding better chemistries for the batteries. It's about using alternative materials. It's also about having a public infrastructure that supports shorter range. If the range is smaller, the weight is smaller. If the weight is

smaller, the cost is smaller. At the end of the day, EVs will be more affordable. If the

infrastructure is dense enough to provide peace of mind in terms of getting rid of range anxiety, that's something that we can do.

[18’27] Obviously this is what the industry is trying to do right now, given the time window in which we are expected to do it, it's very difficult and it's going to be very uneven. Not only across the world, but even within Europe. There is a very, very uneven situation. If you go in the deep countryside of Portugal where I live, you'll see that the situation is very, very

different from Paris. Very different solutions, very different mindset and very different ways of tackling those issues. So I would say in a nutshell, to progress now, the best way is to have clean energy and reduce the weight of EVs. This is from my perspective, the best way to solve the affordability problem and make sure that on a life cycle analysis, EVs are a real game changer for the global warming problem.

## Cecilia Edwards:

[19’18] Thank you for that, Carlos. And that's the last question in this round. And before I go to questions from the audience, I would like to give the debaters another opportunity to

chime in. So Ben, why don't you start us off?

## Benjamin Welle:

[19’37] I think this was nice to hear about some of the solutions being discussed. I just will come back again to overall statistics of where we need to be. WRI has its systems change lab. I encourage people to visit it. One of the sectors that was first identified as transport, where we lay out all of the different indicators in terms of the system change needed to

meet climate and particular climate, but other development goals. But one of these is on

vehicle travel and what we see is the need to reduce vehicle travel from its current trend by around 4 to 14% in terms of the vehicle kilometers traveled.

[20’23] So that means that wealthy motorized countries will need to reduce their overall

vehicle travel by some margin, not getting rid of it by any means, but just reducing by some margin and that motorizing countries will need to reduce from the growth that they're seeing in vehicle travel.

And I just want to emphasize again, the importance of investing in public transport, walking and cycling into some earlier folks points about this is not only just about an investment in these modes, but shaping the city.

[21’01] Mans mentioned I think parking policies, how public spaces provided in city centers, creating low emission zones, the congestion charging that we see say in London or in Singapore or in some Swedish cities. These are the types of tools that we need a as part of a comprehensive approach that reduces the focus on auto mobility and really focus on a

multimodal transport system that provides equal access, more equal access to all residents in the city. That's how we can get to this question of actually freedom of mobility.

## Cecilia Edwards:

[21’45] Thank you for that, Ben. Temi, would you like to jump in on this?

## Temilade Salami:

[21’51] I think so far everyone has been able to bring all their thoughts together and I've also gotten some perspective. I think I would say that when we talk about solutions where we talk about electrification and moving to EV vehicles, there's also the side of having hybrid solutions. So we don't necessarily have to totally eradicate a particular means of

transportation, but is there a way that they can be a balance and people grow in behavior into using these things. When it comes to systemic, we also have behavioral change and systemic change.

[22’30] So when you are dealing with people, there is a long-term plan and roadmap to dealing with them in switching behaviors, because it's also one thing to bring in another type of energy into a country, but it's another thing for the people to adopt that type of

solution. So while we're creating the solutions is very, very important that we consider the people and also see how we can motivate them to change their behaviors and patterns into the usage of some of the solutions that we're creating. Thank you.

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solution. So while we're creating the solutions is very, very important that we consider the people and also see how we can motivate them to change their behaviors and patterns into the usage of some of the solutions that we're creating. Thank you.

## Cecilia Edwards:

[23’01] Great, thank you for that. So in this round we've talked about a number of things. We've understood that we must think about the solutions at a local level, and Carlos even challenges to say most of the solutions we've been talking about are utopian, but Ben also said we have to act now. We're almost at the goal that we have for 2030, so how do we

accelerate that? We've heard conversations around needing different modes, but also people have to change their behavior.

[23’31] We talk about planning in urban cities, where we already have cities in place. So the issues here are quite complex and I think we've covered a vast range of issues. So this

concludes our third round. My hope is that to this point we've provided insights from different perspectives, but also that the discussion has sparked some question.

# PART 4-1

[00’13] So Yamina, our first question is for you. Historically, mobility has been provided either by private commercial enterprises or public transportation projects. What's the potential for public-private partnerships looking ahead?

## Yamina Saheb:

[00’31] Oh, so public transport is more and more, in terms of business model, is more and more public private partnerships. But in public private partnerships, we should be careful

when designing these kind of projects, to make sure that it's not about profit for the private and risks taken by the public sector. If it's well-balanced, and this is what we see in some

European cities, then public transport works well, so it's not in contradiction actually.

[01’07] And I just wanted to say one additional word, that is not right to this question, is that, if you would like to dig deeper in the transformation of the transport sector, I would highly recommend the latest OECD publication on transport, which is about redesigning transport for Ireland. So they use Ireland as case study, but it applies everywhere. And it addresses this issue of urban and rural in the case of Ireland for net zero. In this

publication, so the OECD provides set of recommendations that have been highlighted in this discussion, but you can dig deeper to see, what are the implications and how to design policies, transport policies for 21st century.

## Cecilia Edwards:

[01’50] Great, thank you. And Devesh, I think you, in one of your answers earlier, talked a little bit about partnerships. Do you want to jump in on this question as well?

## Devesh Shah:

[02’00] Well, as I said, when it comes to partnership, while public private partnership is one aspect to it. But I feel that there is more to it, in the sense public, private, and the third side of the triangle, which is the last mile connecting organization. Because many a times,

government policies, for the public investment, they start with very good intention, and the privatization brings in efficiency. But we still lack, I would say, the intelligence that is needed as a bottom up approach to ensure that this works fine. So to me, it is public,

private, and the last mile connecting partnership, which should go hand in hand, that will ensure success of such partnerships.

## Cecilia Edwards:

[02’57] Great, thank you for that. And so, Carlos, how does the chaos seen in Brussels in the past few weeks change the trajectory for the car industry? And how does this translate into mobility options for its citizens?

## Måns Nilsson:

[05’53] Yeah, I'd like to comment on policy here, and I'm happy that Carlos mentioned e- fuels. There's also another set of fuels that we haven't talked about today, which is the

biofuels. And while there has been problems with some of them, like ethanol coming from foods, we are not talking enough about biogas. Because if we want synergy between local pollution, health, water problems, and affordable transport, biogas is a low hanging fruit to capture. We can ferment and digest waste water, from municipal, from industries, from

solid waste, from agricultural waste, and from waste from abattoirs, for example. And these potential is quite large. But now, with the kind of regulatory approach that the EU has taken, they are sort of removing the possibilities to use biogas.

[06’55] They cannot separate properly between fossil carbon emissions and carbon

emissions that are part of a natural cycle. So I am afraid that policy makers are providing too narrow frames and excluding options for transport that might very well have enormous synergies for societies, and both in terms of also affordability and mitigating climate

change. And biogas developments are, for example, a perfect kind of municipal activity that can power fleets of mini buses, in cases where the electrification is not available. Thank you.

## Cecilia Edwards:

[07’41] Thank you for that. Ben, what's your take on this?

## Benjamin Welle:

[07’45] Yeah, I think the combination of these two last questions on, "What are the

opportunities for private public partnership?" And the pathways on the 2035 internal

combustion engine phase outs, the policies that are developing across different countries and states. One thing that hasn't been mentioned here is the connection between the

transport and energy sectors. And I think there's really a lot of folks in the transportation industry, as well as in the industry, in the energy industry, should think about how there is this sort of public-private partner, particularly around the vehicle grid integration. We're

going to see a lot more electric vehicles, in both private vehicles and public transport fleets, freight fleets, municipal vehicle fleets.

[08’36] And how and when these are charged and how they integrate with the electricity grid is really going to be important in how both electricity is used and how it all batteries and also can be harnessed to feed back into the electricity grid. And we're moving from this internal combustion source of fuel, from the fuel happening within the vehicle, to the fuel

moving to the renewable sources that are providing the fuel, essentially, for these vehicles. So we really need to think about that symbiosis between the transport and energy sectors, that can create sort of the two hands clapping, to reduce emissions.

## Cecilia Edwards:

[09’24] Thank you for that. And then, Carlos, I think you wanted to jump back in on this one again.

## Carlos Tavares:

[09’29] Yes. Thank you for giving me the floor again, Cecilia. Just wanted to support what Måns was saying. Certainly, our societies are losing a lot of great potential by not having technology neutral regulations. This is a big, big loss of creativity, of scientific power, that we are deciding upfront by imposing one single technology, instead of having a technology neutral regulation, that would create healthy competition, including what was mentioned by Måns, which is absolutely one of them, that should be competing with other technologies and not just funneling all the minds on one single direction. I was having a good moment

with one political leader, one day recently, and I told him, "Look, you should be aware of one thing. Even Parliament cannot overrule physics." And we should be mindful of that. Thank you.

## Cecilia Edwards:

[10’34] All right, thank you. So Måns, this next question is for you. Are there specific

behavioral changes that governments in the private sector can work on together that would help to accelerate decarbonization, but don't require citizens, especially poorer

communities, to fund a burdensome share of the cost of implementation? Måns, we can't hear you.

## Måns Nilsson:

[11’02] Sorry, I was muted. The issue of behavior, thank you for raising that. It's an

incredibly important area for the transition to climate friendly transport. And I think we've seen some of those behaviors being triggered by policy. I think also we see kind of the user norms changing, when, for example, in the case of electrification, how the first generation

of Teslas were so desirable that it sort of shifted around the logic around going for electric.

And the pioneer countries, like Norway, it became sort of the desirable option. And if you were a successful person, you would go for that. That was entirely the opposite from 10

years before, when the electric vehicle had a kind of a nerd status. And gradually, this has also changed the way that the electric cars are also treated by the dealers selling the cars.

Where nowadays, if you go into a car dealer in Sweden, you're not able to or even test a

fossil car, you're going to only see the electrified vehicles and the plug-in hybrids on display for testing.

[12’25] So I think the market now has been driven by higher income, desirable kind of

consumer. But that means that, when that happens, they pull the sort of the market, and they pull the learning curve. And we are seeing, gradually, the prices are going down, in terms of this learning curve, quite rapidly, so although there are hiccups now in the global

supply chains, as we know. So actually, I think that governments don't need to do too much

on behavior. I think this is kind of happening now on its own with... And it could even be counterproductive for government to try to interfere too much on the behavioral aspects. But poorer communities, I think they need support with infrastructure, they need support with those kinds of things, that, for example, charging at a much higher level than we see

today. Now, the charging stations, they come up where there's money, not where there is a need. And I think the big contribution for government is on charging now. Thank you.

## Cecilia Edwards:

[13’49] So Måns, I have a follow up question for you. As you talked about what happened when the higher income people decide that EVs are attractive, is there a downside to EVs now being a status symbol or a show of luxury? Is there any downside to that?

## Måns Nilsson:

[14’07] Well, maybe it is indeed prolonging the norm that the personal car is the ultimate sort of sign of success, which is the paradigm that we need to get out of. But I think there are quite a lot of counter forces that have been discussed today in society, amongst young people, that, for example, in urban areas, don't bother taking a driver's license even,

because they don't see that that is a particularly important part of life. So there is a

consumerism in this, that is problematic from a sustainability perspective, but I think it's helping the introduction, playing on this consumerism, and the desire that working class and middle class has for their convenience and also, to some extent, for social status,

which is not something we should frown upon. This is part of human existence and psychology.

## Cecilia Edwards:

[15’19] Great, thank you for that. So the next question is for Devesh, freedom of mobility is about bringing goods and services to people, to satisfy their basic needs, but freedom of

mobility is also about expanding life's experiences for all. How do we combine these needs for all citizens on a public scope?

## Devesh Shah:

[15’40] Wow. Okay, to begin with, to answer this question, I'll start with what I think Måns was mentioning a few minute backs about the burden on the poor community. So what we have seen as a success is that, when we connect these technologies of decarbonization to the carbon market, we get lot of price reduction, and it makes it more affordable. For

example, a biogas unit, we could bring down the price to 20% of its selling price, and thus, we were able to attract more people from rural places to adopt that, to accept that

technology. So I think, if we look at it in a creative manner, with respect to mobility also, this can be done, point number one. Point number two is that, coming to this question, it's about, on one side, I have basic need, but the other side is expanding life's experiences.

[17’02] But I think life's experiences, when it comes to developed countries, developing countries, even within developing countries, the rural side, people from lower straighter

income, and I would say, not included gender, the dynamics change dramatically. So I think, the first and foremost thing is to even just provide them the mobility, a responsible mobility, clean mobility to them. And then, we can imagine a world of expanding life's experience. On one side, when I'm struggling for my mass loss bottommost thing or mass loss triangles

bottommost thing, and life's experiences, I'm probably talking about second from the top. [17’50] So I think there is a big gap to be taken care. And as someone rightly pointed out, there is no one common solution for all the problems. So that's where the action research, which is supported by local CSO that I was talking about, will bring out all these things.

Action research is the one which is going to bring out the nuances, that is necessary for different country, different states, rural area, and thereby, customizing the solution and

hopefully, bring about life's experiences in that one. But to begin with, it's important that we give them the basic necessity, a right to mobility.

## Cecilia Edwards:

[18’37] Great, thank you for that. So Ben, don't you think that the 15 Minutes Cities

Movement will affect the interclass' movement of people and generate ghettos, that will increase the breach between the rich and the poor?

## Benjamin Welle:

[18’54] No, I do not. I think that we should be looking for all citizens, for wherever people are living in metro areas, to increase their nearby access to jobs and opportunities. So these should not be efforts that are geared towards specific gentrified areas of cities, but all across metropolitan areas, to increase people's access to regular reliable public

transports, to increase and reduce the need for single family zoning and the like, in, for example, in the United States. So that more nearby amenities can be established. For example, in the United States, most trips are under five miles, and plurality are even under three miles. So really, there is an ability to shift many existing trips to walking and cycling, that created in neighborhoods.

[19’56] So I think this sort of controversy that's been developed in some countries, like the UK, around the 15 Minute City is somewhat of a concocted pitting of forces against one another, that really, when you get into reality, we're just talking about shifting some trips

away from private motorized service vehicles to having those as more of options for people to walk, cycle, and access public transport. This is not some sort of... It shouldn't be put in some kind of political battle of right and left and so forth.

## Cecilia Edwards:

[20’40] So Ben, while you have the floor, do you want to comment on Davesh's question? Or I think you had your hand up on that one.

## Benjamin Welle:

[20’49] I did have my hand up about your question about having electric mobility maybe for the shiny, making it a luxury purchase that's only for a few maybe. What it made me think about was this problem that we are seeing in, I don't know, I think it's partly industry, but it's seemed partly driven by consumer preference too towards larger vehicles. We've seen a lot of emphasis in some geographies on the electric vehicles around, say, an electric Hummer or an electric Ford F-150. And these vehicles are getting larger and larger. I'm six foot two, and sometimes, I can stand next to the top of the hood of one of these vehicles.

[21’41] And it's coming up almost to my ears, and I, myself, when I was growing up in a rural area in the United States, had had a pickup truck for a landscaping business I had with two of my friends when I was very young. And the size of these vehicles is enormous. The

battery sizes for these vehicles is much, much bigger than when you compare it, say, for an auto-ricksaw in India. So when we're thinking about the resources that are available, but also, the safety implications, like the rising number of pedestrian fatalities happening in the United States, I think there needs to be more cooperation on how we build more humane

automobile systems, that are also contributing to road safety and emissions and battery supply and the like, that are more sustainable. So I'll stop there.

## Cecilia Edwards:

[22’41] Exactly, Ben, I live in Texas, so I understand that demand for large vehicles. So Temi, if you could give some young students, kind of master's degree PhD students, a suggestion to develop a research on fuels to mobility, what would it be?

## Temilade Salami:

[23’02] I think it should be probably understanding behavioral patterns on how people adopt the transition from this certain fuel. And also, it'll be what the realities are on ground for

different countries and different regions on adopting these types of energy. And the last one would probably be, what is the scalability? And let me say the scalability and the

realities of using some of these things in certain countries. So there are still some

countries that are very forceful reliance, and how do you bring that into context, telling them to use electric vehicles? What happens to their fuel? Or is there a mode, like a hybrid model, that they can adopt to actually get fuel for mobility? So is it going to just be like a total shift or a gradual shift from this certain energy to this clean energy?

## Cecilia Edwards:

[24’07] Great. Thank you for that, Temi. And before we wrap up, I want to see if debaters have any last words. Anybody want to jump in for any last comment? Okay, Måns?

## Måns Nilsson:

[24’21] I want to just say very briefly that I'm very happy that this has been a global

perspective, with many continents around the world represented, because lot of the times when we talk about transport and mobility, we end up in our own home regions, where the conditions are very special. So it's a challenge to take the global perspective, but I think, with the panel that we've had, it's been actually quite enriching. So I'm excited to continue this conversation really across the boundaries and across our regions. Thank you.

## Cecilia Edwards:

[25’03] Thank you for that, Måns. And then, Temi, and then, Devesh. So Temi?

## Temilade Salami:

[25’10] I just wanted to say that, when it comes to mobility, people will always move, the population will always increase. And when we're trying to find solutions, you should find solutions that fit specific realities of different people. And it's been really amazing getting different perspective in this debate and having the access to listen to people who are very knowledgeable and very versed in this kind of topic. So thank you so much.

## Cecilia Edwards:

[25’38] Great. Thank you. And Devesh?

## Devesh Shah:

[25’42] Collaborate, collaborate, and collaborate more. It's very important. It's like

collaboration between various governments, collaboration between technology providers and the end users, and collaboration between the academia, who keep coming up with a newer and newer things. And how do we bring it to the grassroot level? Because there is a big gap between what is happening in academia and what is actually available at grassroots level.

## Cecilia Edwards:

[26’18] Thank you. Very well said. So for the past two hours, we've grappled with a wide

range of perspectives on one question. Now, do we have an answer? Do we know whether, in a decarbonized world, freedom of mobility will be affordable to a happy few only?

Perhaps. We have well demonstrated that mobility is a basic need for everyone. We all have a need to move or to have goods move to us within our reach. We need access to food, to jobs, to health services, et cetera. Decarbonization, on the other hand, is that an individual

need or more of a collective and global issue? While it may now be an individual concern for some, the science tells us that it is most definitely a global need now. We have the ability to ensure everyone maintains a reasonable level of mobility of freedom. As we decarbonize, if we choose to plan holistically and inclusively, we are rapidly marching down paths that

should help us approach our decarbonization targets, but are costly and not yet fully aligned with the needs of everyone.

[27’30] The good news though is that we heard clearly today that there are solutions that

can address both decarbonization and affordability at the same time. Those solutions range from thoughtful city planning and organization to optimize people's movements, reimagined public transportation, the creation of new mobility ecosystems, and a thoughtful shift to electric mobility. If we do the work to collectively develop solutions that are inclusive of the different perspectives and the needs that exist across the world, and then, enable local adaptations and implementations, that serve the needs of specific communities, we can

achieve the collective goal of freedom of mobility for many more than a happy few. In the

coming days, you will be able to access a more detailed summary of the takeaways, a replay of today's events, and transcripts of the debate, that will be available in several languages

on our website, freedomofmobilityforum.org.

[28’34] I would like to thank all of the people who worked tirelessly behind the scenes to prepare for this debate, our advisory board members for their precious contribution to the topic of the year and the panelist selection, the panel of experts, who suggested facts and figures for the debate, our panelists, who brought us their perspectives and expertise on this very topical issue. And finally, thanks to you, our audience, for your participation and your questions. In the past two hours, we've only grazed the surface of this year's

questions. The discussion must continue. It must continue on our website,

freedomofmobilityforum.org, within your respective communities, and on our social

networks. During the year, the forum team will curate research, produce videos and short papers, and conduct interviews, and place them on our website. Every month, there will be new content to keep this discussion going. I hope you join us there, and we hope to see you next year. Until then, I encourage you to think about how your daily choices affect our planet and the freedom of mobility of all its citizens.