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WEBINAR

MOVING BEYOND GDP: SUSTAINABILITY, RESILIENCE, AND INCLUSIVENESS FOR ECONOMIC DEVELOPMENT

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Panel:

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P R O C E E D I N G S

MR. COULIBALY: Good morning. Good afternoon, everyone. Thank you for joining us. My name is Brahima Coulibaly. I'm the vice president of the Global Economy and Development program here at Brookings. It gives me really great pleasure to welcome back World Bank colleagues to discuss the 2021 edition of the Changing Wealth of Nations report, which builds on the one we discussed back in 2018 at Brookings. The report was just released this morning and it is the fourth edition of this groundbreaking work that assesses the country's wealth over time, and it introduces the concept of wealth as a complimentary indicator to GDP in measuring socioeconomic progress.

But the main premise of today's discussion is that as useful as GDP is a metric, it has limitations when it comes to the assessment of socioeconomic progress. And Simon Kuznet, who first developed the modern-day measure of GDP in the early 1930s was among the first to recognize its limitations, and in a famous quote, Robert Kennedy referred to GDP as a measure of everything except that which makes life worthwhile. So, among those limitations, it doesn't capture human and natural capital, unpaid work at home. GDP also fails to account for environmental externalities and non-material aspects of welfare, such as happiness and wellbeing, is an important area of research for us at Brookings, being led by my colleague, Col. Graham.

When we look back to the pandemic and the disruptive effect it has had on lives, as well as the looming climate crisis of the world, brought into focus the importance of many of these considerations. And as the world leaders soon gather at the U.N. Climate Change Conference, we policymakers, development practitioners, educators, and researchers must rethink and reimagine how we approach and understand economic development, including evaluating environmental, social, and governance measures beyond the traditional monetary metrics.

The report in this conversation could not have been more timely. The report tracks the wealth of 146 countries between 1995 and 2018. It measures the economic value of renewable capital, such as forests, ocean resources, non-renewable natural capital, such as mineral and fossil fuel, human capital, as well as produced capital, including infrastructure and then also foreign assets.

With each addition of the report, it gets more and more comprehensive, thanks to the hard work of our colleagues at the World Bank. Comparing, for example, to the 2018 edition, this report

has expanded its approach to measuring national wealth and by increasing the number of countries covered. It also added measures for the blue natural capital, like marine fisheries and mangroves. And for the first time, the report examines the protected impact of future risks, such as climate change and the low carbon emission, which is quite critical. If you don't yet have a copy, I would encourage you to download one from the World Bank's website.

In the next portion of this event, Jim Cust, Senior Economist in the Office of the Chief Economist of Africa Region, and Grzegorz Peszko, who is the Lead Economist in the Environment, Natural Resources and Blue Economy Practice at the World Bank, will share some key findings. The presentation will then be followed by a grid panel discussion, moderated by David Pilling, who is Africa Editor at the Financial Times. And David has been a great partner of the Brookings discussions. He moderated the 2018 events on the subject. For those who attended, you will remember. And he's also author of the book entitled, *The Growth Delusion*, *The Wealth, Poverty, and the Well-Being of Nations*, which I also encourage you to read if you haven't already. So, he comes equipped with this knowledge on this topic.

We are also pleased and grateful to have a panel of experts who will enrich the conversation from various perspectives. It features Karin Kemper, who is Global Director for Environment, Natural Resources, and the Blue Economy at the World Bank, and Rodolfo Lacy, who is the Environment Director of the OECD, and my colleague and an expert on sustainability, Senior Fellow Amar Bhattacharya. You can join or follow the conversation on Twitter, using the hashtag cwon2021. Again, that is cwon2021. You can also submit your questions using the same hashtag. With that, it is my pleasure to turn over the mic to Jim and Grzegorz for the presentation. Over to you.

MR. CUST: Good day. Hopefully, you can see my screen. Okay. Thank you very much, Coul, for the introduction. It's a pleasure to be here and great to be back at Brookings to launch the next edition of the *Changing Wealth of Nations*. So, my name is Jim Cust and myself and Grzegorz, as you heard, are going to take you through some of the highlights from the new report before we hand over to the panel discussion.

So, the first thing to say is the *Changing Wealth of Nations 2021* is a large team effort. You will see the editors of the report listed here, but it also draws in

academics and authors and collaborators from all over the world who contributed to this significant report, and you can download it on the website listed below; worldbank.org/cwon. So, first, I want to say a little bit about what the *Changing Wealth of Nations 2021* is. So, as you heard from Coul, it's both a report, but also a database. A database of wealth accounts for 146 countries, tracing the evolution of their wealth in these different assets that we measure, all the way back since 1995. It's the fourth report in the series, so the first one in 2005, *Where is the Wealth of Nations*?*,* really established this concept, but it's been developed and expanded ever since then, and the theme for this year's report is managing assets for the future. So, that means for the first time, we're considering the future well of nations, and not just analyzing the historic trends in wealth in the past.

So, what does the future wealth of the nations look like? Well, we're considering questions such as what impact COVID-19 could have on human capital wealth across countries. We also look at climate risks and the implications labeled decarbonization. So, one of the questions we're really interested in this time around is how policy choices shape wealth. So, one example of this is thinking about how climate policies might impact the value of fossil fuel wealth held under the ground in many countries, and what policymakers today should do about that. You know, how they might manage that risk that comes from global climate policy and decarbonization.

So, the purpose of the *Changing Wealth of Nations* is really to be a tool to help governments in countries to look beyond GDP. GDP is great for measuring growth and for comparing between countries, but as we already heard from Coul, it has serious limitations. So, what wealth accounting does, it allows you to measure the underlying assets that generate income that contribute to GDP. Ultimately, GDP growth is sustainable only if the asset base of the country isn't shrinking. And so we can look at measures like the changing wealth per capita to measure how the asset base is changing and to see how sustainable prosperity is likely to be into the future.

So, comprehensive wealth covers a wide range of asset types. In the wealth accounts, we measure everything from produced capital, which is the machines and structures and cities, to natural capital, where we distinguish between non-renewable capital and renewable natural capital, measuring things like fossil fuels, minerals, but also cropland and forests. And for the first time this year, we also add in blue natural capital, which covers marine fisheries and the value in mangroves, for example. We

also measure human capital and the position of countries in terms of their foreign assets. So, this together, forms the wealth of a country and wealth is used to generate income, which contributes to our measure of GDP. But as I said before, the asset base is crucial to determining how sustainable the GDP and ultimately how sustainable the prosperity of a country is likely to be.

So, what did we find? Well, this map shows you the changes in wealth per capita since 1995. As you can see from the colors of the map, the picture is quite varied. So, as you will, some countries have increased and expanded their wealth per capita significantly -- so, many countries in Asia, you'll see some in South America and Eastern Europe, countries in Africa like Ethiopia and Mozambique -- while we also find there are 26 countries that have had declining or stagnant wealth per capital since 1995. So, what does that mean? Well, it tells us that the investment rate in produced capital may have been insufficient or that the use of non-renewable resources like mineral extraction or oil extraction hasn't sufficiently been reinvested into other forms of capital, whether it's the investment into education and human capital, whether it's education into produced capital, hasn't been sufficient to lead to a net increase in per capita wealth over this period.

And so, why might we worry about that? Well, this is the declining asset base that we worry about in terms of economic sustainability. So, if you're depleting and degrading your assets in order to achieve GDP growth, then it's put to risk the sustainability of our prosperity into the future. So, we can go into each of the assets that we measure as part of the change in wealth formations and analyze key trends in each of those asset categories to try and determine what might be causing this? What might be leading to this relationship where we see declining or stagnant change in wealth per capita in some countries and large increases in wealth per capita in other countries.

So, now I'm going to hand over to my colleague, Grzegorz. He's going to take you take you through some of the key findings, just in snapshots -- there's a long report that you can download, as well -- just to give you an idea of how we can dig into some of these assets and analyze what might be going on.

MR. PESZKO: Thank you, Jim. It's a pleasure to be here. So, Jim has taken you through the growth landscape of wealth and navigated you through this trend of the growth portfolio of the national assets. Let me give you a sneak peek of some of the key findings related to individual assets

and some of the policy implications that we found very intriguing.

So, as humans, let me start from the obvious, which is us. Which is the humans as the human capital. So, we represent as humans the largest share of our total wealth. Our numbers. Our skills. Our health. They represent over 64 percent of the total -- between the human capital between the OECD high income countries and the low-income countries, but we also found, interestingly, the high-income non-OECD countries have had a very low growth of human capital over the last 20 years. And there is -- Chapter 12 analyzes why the allocation from abundance and the reliance on non-renewable and natural capital, mainly fossil fuels, can be associated with a reduction of the rate of accumulation of human capital. This may be the other symptom of (inaudible).

And what was also disturbing was to find the striking disparity between the male and female human capital. Since 1995 to 2019, in the world in total human capital increased very little, only from 35 percent from last year to now, to 37 percent now. So, we may hold the highest share of human capital in Latin America, in Caribbean. But staggering only 37 percent of the human capital in South Asia is held by women. It just suggests that women still have very limited access to paid employment, and t hose women who work make very low wages compared to men.

So, next, let's look at the capital that was offered to us free of charge by nature, which is natural capital, the renewable part of it. And this for the first time includes the value of the blue natural capital, fisheries, and mangroves. And we've seen some very interesting trends over the last 20 years. The value of blue natural capital fell by more than half, and it was mainly due to the very significant collapse of the value of fisheries. I think 3 percent over this period. And it was mainly driven by overfishing by the physical depletion of the fish stock, driven by policy, by perverse subsidies, as well as the rising costs. And that has undermined the wealth of the marine fisheries.

However, the dramatic loss of the value of fisheries

was partly compensated by the increased value of mangroves. Mangroves, however, when we look at the physical area of mangroves, mangroves shrunk in physical terms. However, the value of the remaining mangroves increased by more than two and a half times because of the increase of the value of the coastal capital. You know, the fancy hotels, the infrastructure, the ports that the mangroves protect. And going forward, investing in mangrove restoration, even higher rates over time as the

(inaudible) rises and as the climate change would increase the frequency and density of surges. But also, because the coastal capital will continue to be even more expansive; the big infrastructure on the coast that the mangroves protect. So, it shows you how important natural capital can be in the adaptation to the climate change.

Then, look at the side of the natural capital, which is the wealth that is underground. The fossil fuel, in particular. So, we are all kind of aware that these are the goals to be achieved because consumption of the fossil fuels will go down over time. And what perspective at this discussion on the future value of fossil fuels brings some rigor realism and, I think, a picture of fossil fuel assets. So, we have calculated the assets and we have the high number in the most ambitious climate policies and now you're up to 6.2 trillion dollars over the period of lost resource (inaudible). But what is really important is the differences in the distribution of (inaudible) between scenarios, between fuel types, and the country. Because this tells us a lot about the effective strategies that engage those often more reluctant countries that depend on fossil fuels into the cooperative climate action.

So, we have several (inaudible) to represent their uncertainty about the possible future climate and trade policies that different groups of countries, especially those import fossil fuels and those who export fossil fuels, can make the choices they make in the future under the Paris Agreement. So, overall, creating the fossil fuel asset value decreases significantly and also is consistent with (inaudible) and even farther into scenarios consistent with one-and-a-half-degree goal of the Paris Agreement. And in absolute terms, especially against that expected referenced scenario. But fossil fuel will decline less than the physical output, which is good news for climate because climate impact is driven by the emissions, hence consumption and burning of the volume of fossil fuel, but it's also good news for the owners of fossil fuel reserves that remain in production because their revenues and rents (inaudible) energy can go up.

So, the worst news is that even in the general equilibrium model, we see some quite significant volitivity of the -- because the low carbon transmission will be associated with a lot of this (inaudible) where some of the major supply has exited the market and the prices freefall, and then where there's some major supply demand shock, the crisis may also react quite volatile. We look at the tradition of the losses between oil exporters and (inaudible) exporters, and we found that oil really benefits from

climate action, and it does not always apply for the gas and coal exporters. So, there may be misaligned long-term incentives between the fossil fuel owners, but also, there is a global conclusion that often works the policies that protects the wealth of fossil fuel owners are not good for the long-term growth and welfare of the citizens of these countries. So, there are these policy-relied on insights from the analysis of how the fossil fuel wealth may be impacted by (inaudible) transition.

And last, there is an asset that I'd like to draw your attention to in this presentation, are the renewable energy. It is still an unaccounted wealth of nations. So, while fossil fuel assets are (inaudible) the balance sheet of the countries, the renewable energy is not. The national balance sheets account for the book value of the wind farms and turbines, but not the underlying energy asset. It's like, you know, the balance sheet would account for the value of the oil rig, but not the oil that this rig is pumping. So, we have proposed a balance sheet to calculate the renewable energy and wealth as assets, and we proved this concept by developing energy accounts within these countries. And we found that in some of the fossil fuel of each country, like Canada for instance, the value of renewable energy assets has over-exceeded the value of the total fossil fuel wealth of this country. And as you see from this slide, the hydropower so far has dominated the total renewable energy (inaudible) countries, solar and wind, at least by 2017, when we had calculated the data, still rarely created economic grants, which is typical for the industries with maturing technologies. The volume of electricity generation has increased in the recent years, however, because of the (inaudible) costs, and by now, perhaps, a lot of solar and wind and energy generation already creates significant wealth for several countries.

We also ran the simulations for South African and (inaudible) to see how the policies can evoke the value of renewable energy. And we found that, South Africa for instance, the value of solar and wind energy could exceed the value of coal reserves by 2020. So, in Angola, the combined value of hydro and solar energy could match the value in natural gas by 2020, as well.

So, last, some policy, general policy recommendations from several different analytical pieces that you can find in the report. First of all, we recommend the countries to measure and monitor wealth, in addition to the annual flow measure structure, such as GDP, using this established standard of systems of national accounts and systems of (inaudible).

And next is the investment in wealth. First of all, especially in the wealth components

that are (inaudible) character that are underpriced and undervalued by the markets, such as certain amounts of human capital and natural capital. It's not only about having investments, it's about also governments to allocate property or user rights to the (inaudible) and correct market failures that prevent the allocation of capital of the natural and human capital by private investors. And third is to create policy incentives to protect and increase the value of this most vulnerable and least feasible wealth. And this is about setting the pricing incentives right and correcting the failure of the market to recognize the value of assets that we, as market participants, normally don't see. And this would lead to the much more diversified and rebalanced overall portfolio of wealth and making the growth more sustainable and more resilient and transcending this concept of the traditional diversification of product and export into the (inaudible) view of the diversification of the portfolio of assets that we, as (inaudible) have at our disposal, because it overcomes the shortsightedness and luminate the blind spots that we have making our everyday decision.

So, this is all from us as a team. And thank you very much. And now I hand over to David Pilling, who is our fantastic moderator to lead the distinguished panel that will follow. Thank you so much.

MR. PILLING: Thank you very much, Grzegorz. I hope you can all hear me. It's a great privilege to be here today and I think this report is extremely important. And as Coul said in his introduction, I wrote a book while working at the FT, called *The Growth Delusion*, and there were many aspects to what, in a sense, was a critique of GDP, but one of them was that, and wealth is simply not considered GDP really being a measure of flow or what we might call income. If you think of a company, we can think of a company's profits. And a company's profits might be fantastic, but the underlying reason for that may be that it sold its machinery, fired all its workers, and sold its land. So, next year's profits are not going to be very good. And yet, GDP profits tell you really nothing about that. So, examining the wealth of a nation gives you a whole other dimension. As we'll see, that throws out many theoretical and practical questions and there are limitations and even to the fantastic work that this report has done, and I hope that we can discuss some of that. Fortunately, we have an amazing panel.

Before I get to introducing the panelists, and thank you all for joining us, and if any of you would like to ask questions, I will try to feed in some of those questions as we go along. The best way is

to Tweet those questions using the hashtag, #cwon, for Changing Wealth of Nations, cwon2021. So, that's hashtag cwon2021. And the three panelists that we are fortunate enough to have today, first of all, we have Karin Kemper, who is the Global Director for Environment and Blue Economy at the World Bank, Amar Bhattacharya, Senior Fellow at the Center for Sustainable Development at Brookings, and Rodolfo Lacy, Director for the Environment, Director of the OECD. Thank you all very much for joining us.

And I would like to start with Karin, if I may, and I'd like to go to basics. There you are, Karin. I'd like to go back to basics first of all before we kind of you know, interrogate this report further. The first question is just why? Why is the World Bank putting so much weight and intellectual heft and resource behind developing what is an entirely, really, new set of accounts beyond GDP?

MS. KEMPER: Yeah. Thank you, David. And first of all, let me say that I'm really, really delighted to be here, and I would like to thank our colleagues at Brookings for hosting this event in the context of the launching of *The Changing Wealth of Nations*. It is really great that you are doing this. And that really relates to your question, David of, why is this so important to us? Why do we think this is a big deal to go beyond GDP and to develop this form of wealth accounting? And the reason we do that is that it helps countries see that asset base, including the natural capital, which can be overlooked and often is overlooked, in standard microeconomic indicators like GDP. GDP growth, as we just heard, also from Grzegorz and Jim, if you have GDP growth that's at the expense of your assets that you have, it's unsustainable, so using wealth alongside GDP can help countries monitor sustainability. And nature, especially, has too often been invisible in national finances. So, putting natural capital on balance sheets can help address this.

Now, from the World Bank perspective and from a developing country development perspective, that's especially important because many developing countries are very rich in natural assets. So, a key part of the development process will be about how one can manage them and how countries with prosperity without compromising their long-term sustainability. So, that's why we are into this very much.

MR. PILLING: Okay. I'm going to probe you later on some of the limitations, as well as some of the revelations, in a sense, of them, the world accounting methodology. But first of all, how receptive have governments, politicians, finance ministries, NGOs, and all the various stakeholders, how

receptive have they been to this new way -- and it is a new way in a sense -- of looking at wealth, because so much of our -- just as companies like to report quarterly profits, so, you know, we are kind of trapped in this GDP world. Have you found that there is a good reception for this new methodology?

MS. KEMPER: That's actually a very good question. You know, the first *Changing Wealth of Nations* was issued in 2005, and then we had various others that have gone with five, six years difference in time, including, because at the time it took longer to get the data. But the last one that we launched was in 2018, and now we are in 2021, and we feel that there has been a great uptake of this type of wealth accounting and that the demand for this kind of approach really has grown. So, when we started at the time, it was a fairly new concept. Now it is much more mainstream. There are dozens of countries that are, in one way or another, calculating their natural capital, and for instance, the recent U.K. government that scooped our report that was about the economics of diversity, it actually explicitly called for injecting natural capital into national accounting. So, it's really becoming much more mainstream. There are countries like New Zealand that have adopted a very comprehensive wealth accounting approach across all of the different assets that they call the living standards framework, and not unlike what we are doing in the report, they measure natural capital, human capital, financial and produced capital, plus social capital. And then there are other countries, such as Zambia and Columbia, for example, that have adopted natural capital accounting approaches to better understand how they can harness their natural wealth. Let me just give you one example of, for instance, Zambia, is doing accounts for forests and water, which then have the government as it makes policy decisions, on how best to use natural resources for now and for generations to come.

MR. PILLING: Thank you very much. And many, many follow-ups there. But let me turn, first of all, to Amar. What do you think the concrete implications are for development and, you know, a lot of this discussion is bound to be about the environment, and for the energy transition. What are the implications of this report?

MR. BHATTACHARYA: So, maybe, just to set it in context -- first, just to congratulate the team and the World Bank. This really is a milestone report building on, now, a great tradition of counting for wealth in all its dimensions. And this report pushes, in particular, I think, the policy implications at a time which is, you know, really quite pivotal for the world.

If you look at the next three decades, we will determine the future of development and we will determine the future of climate. Why? Because in the next three decades, you know, we will be at a point where we can close the development gap. As was pointed out by Jim, there's a big, big gap in wealth between not just low-income countries, but low and middle, in many, middle-income countries with high- income countries. So, and this is a period going to be of convergence and that is a great opportunity, and we have to do that at a time where the world will add two billion people to the planet, all of them in the developing world other than China. So, this is a great opportunity for development, but it will mean a massive buildup of assets of all kinds. And if we repeat what we did in the past growth model, we will not be able to have a sustainable development of world wealth, and we will certainly destroy the planet.

And that takes you to the second part, which is we are running out of time on the climate agenda. As the latest IBCC report highlights, you know, we are seeing accelerating climate change, accelerating risks, and shrinking window to act on climate change. So, the policy implications of this report are really of paramount importance. They have to applied both at the country level, but also at the global level.

So, what's the path to capital? It's investment, you know. How do we build capital? We invest. And the major pieces I would put to you is that the world requires a very major portion investment in these coming years. It's not just the SPGs. It's beyond the SPGs, you know. So, we have to anticipate that, and we have to ask the question, where is that investment needed? What are the impediments behind that investment? How do we make that investment sustainable?

And I think the report is absolutely right. The first area of focus has to be on human capital development and asking the question, why is it that we are not performing as well on human capital development as we should? You have to particularly keep in mind that demographic transition that I was talking about.

Second, we need produced capital, but it has to be a very different kind of produced capital. One of the policies that are going to be required and the most important policy is a massive acceleration of energy transition. Energy is crucial for development. It's crucial for climate. How we get that right in countries that are low income and countries like South Africa, India, Indonesia, will be crucial.

The current aspect of investment that will be extremely important is resilience. We have to invest in resilience because we are facing a world of increased shocks. How do we do that? How do we make capital more resilient in the face of shocks?

And finally, we have to think about nature. The value that ecosystems and natural capital brings to the equation. How do we restore rather than destroy nature? And as Karin had mentioned, you know, the natural assets are determined by geography, not by income. So, we have to focus on natural capital, you know, where they are and, of course, there are some natural capital like, you know, agricultural land, that's distributed very evenly. Other kinds of natural capital, less so. Certainly, you know, the forests. We have to think about the big forest areas of the Amazon, the Congo Basin, and, you know, Indonesia-Papua region. How do we ensure that those investments are made?

So, I think this report gives us a real rich agenda

which we can apply at the individual country level, but that must also guide our global vision, thinking, and action.

MR. PILLING: Okay. That's a fantastic overview. But just a quick follow up, because I like, sort of, concrete example so we can think about this in a specific. And I know you've done some work on South Africa. And South Africa wants to move to become a, you know, a skilled workforce economy, i.e., with more human capital. And we know that it has natural capital. But some of the natural capital that will appear on its balance sheet, as measured by, you know, this report, is coal. And now we know that coal is probably overvalued in those accounts because the world is moving away from fossil fuels and the regulatory environments may begin to penalize South Africa itself. Certainly, when South Africa begins exports to Europe with things like bora, carbon bora adjustment. So, my question is, if you are the South African government and you're looking at this balance sheet, as now revealed and in this report, what do you with that? What do you do in mapping out your transition to, you know, a sustainable growth high tech, highly skilled? How do you turn coal, or maybe not coal, into those things that you want?

MR. BHATTACHARYA: So, that's an excellent framing, David. So, let's take the situation today. South Africa is massively underinvesting in its human capital, and, you know, we know, as the analysis in the report points out, that actually, it has a much greater stock of renewable capital that

is not recognized. So, what's the answer? The solution is to accelerate the process. It is to deal with the just transition issues that will arise in terms of people and places associated with the coal economy, and it is to invest in a low carbon future and opportunities that come in a low carbon future much broader and beyond coal. That is precisely what South Africa is doing right now. They have established a presidential commission to come out with a long-term vision. They have committed to net zero by 2050, which is extraordinary for a coal-based economy, providing the international community steps up and does its side of the bargain. And again, the answer to this is better, smarter, investment in that human capital in a different kind of produced capital but recognizing that there will be adjustments also to fight, you know. Adjustment costs that are, you know, the people and places, but also adjustment costs in the phasing out of capital that's already there. And that's, you know, very much centered around the utility prices in South Africa, but there is a clear program that has been laid out and South Africa intends to come to (inaudible) precisely in such a program.

MR. PILLING: And, Rodolfo, if I may turn to you. First of all, a general question. What were your main takeaways from this report?

(Silence)

MR. PILLING: I think you're on mute. Rodolfo, I think you're on mute. We can't hear you. I'll go to Karin. Can I go to Karin, and then I'll come back to you, Rodolfo? What, Karin, do you think are the policy recommendations that immediately come out of this report?

MS. KEMPER: Well, there's four key recommendations. Of course, as we've heard different angles, you could make many more out of it. But one is that countries should measure and monitor comprehensive wealth. So, as we were saying before, not just what is produced capital or financial wealth, but really all wealth, and that includes natural capital, but also includes, actually, the human capital where we have a big emphasis in the report. And the report provides the methods and examples for countries, what to do and how to do their own wealth accounting.

The second one is countries should invest in their assets. And we heard a little bit about that from Amar right now. So, building up the human capital and natural capital to sustain future prosperity. And there, I think the report provides examples of how richer countries have invested in key assets, a path that other countries can emulate. And it also identifies areas where investment might be

distorted by undervaluing such investments.

The third policy recommendation is that governments can act to address market failures and mispricing of assets. So, for example, to reduce pressures of over-fishing, which comes from subsidies and the management of fish stocks and catch quotas, or pressures of deforestation from the undervaluation of forest ecosystem services and carbon retention relative to agricultural land. So, the policy point is this can be addressed. It doesn't need to be like that. And that comes to the fourth through the report.

And then, the fourth key recommendation is to diversify the asset portfolio and that diversification can manage risks and can improve resilience. And there, for instance, the report examines how fossil fuel rich countries can pursue diversification of assets, rather than just thinking of exporting these assets, but really to diversify and reduce the risks that they face from the global decarbonization in the future and from an overreliance on volatile sources of wealth, such as oil and gas. And that speaks a little bit to what Amar was mentioning also in response to your question right now. So, these are the four key recommendations.

MR. PILLING: Okay. I just had a little bit of problem in hearing. Just the very last sentence, but that's fine. Rodolfo, are you now live?

MR. LACY: Can you hear me now?

MR. PILLING: I can hear you perfectly. That's great. We're very happy to hear you. And could I ask you what you think the key takeaways were, and then I want to go on to carbon. Carbon price.

MR. LACY: First of all, I would like to really congratulate the World Bank Group for putting the wealth in issue on the scene. Today, three days before the global climate discussions, negotiations focus on reducing greenhouse gases, just CO2. So, these will be (inaudible) is quite important and the contribution (inaudible) provide a comprehensive approach with the new metrics; metrics that I include in different indicators. Not only CO2 emissions for the involvement (inaudible), but this is also quite relevant. Now that we are looking at how societies are expecting a new normal. A new normal that they can base this idea of building back better, but how to do it, if you do not measure wealth, these are relevant for the people. Relevant for the population. Let me give you just one example of these

new world view lens that we are applying at OECD. Instead of talking about how many electric buses or electric cars we need in one city or in one region, we have to look at the accessibility of the people to services. Do we really need those gadgets or those physical infrastructures that are, of course, adding more greenhouse gases, or we can meet the needs of the population with more sustainable, of course, organization, not on the things that we are adding to our assets? So, we have to keep our natural assets and we have to value the natural assets that surround us, but also, we have to incorporate that into the economy. So, the measurements, how we can monitor the policy recommendations that are included in the report are quite relevant in this discussion.

MR. PILLING: Right. And can I ask you how we would -- and I know there's a lot of interest in this question -- how we would inject a carbon price into this kind of accounting? Because the methodology as it works at the moment, and some of the leaders have spoken about this explicitly, for example, it overvalues oil because it doesn't measure the externalities, plus we know that the regulatory and political environment is turning against fossil fuels. So, fossil fuels on your balance sheet may not be worth as much as you think they're worth. On the other hand, it undervalues trees, and those trees may only be valued -- may only reflect the value if you chop down those trees and sell them, but not what is commonly called (inaudible) services, for example, the carbon capture. And now, we begin to address that balance, presumably, if there were a $50 or a $100 price per ton of carbon that was universal and clearly, there isn't that at the moment. We're seeing these different markets, kind of, pop up. And how would a carbon price change the game and change how we use these, sort of, wealth accounts?

MR. LACY: Well, first, we need to look at both sides of the coin when we talk about carbon (inaudible) or carbon price. Because in the oversight of the economy, we have a lot of subsidies for fossil fuel assets. If we eliminate those subsidies, we will be, of course, comparing these in a different metric. So, the first policy that we are promoting in G-20, but also in the G-20 and (inaudible) 74, is to reduce or eliminate the completely fossil fuel sources. Doing that, we have to create direct and indirect carbon prices. We are measuring effective carbon rates in order to really see if the carbon pricing system of arrangement in our countries are effective to reduce emissions and just to incorporate a real value of our natural assets and the externalities that are now amended, reflecting health problems in the society. And we are, for example, I am in favor of many mitigation efforts because they have co-benefits for the

population by reducing the pollution, or pollutants that are released when we burn fossil fuels. So, if we take in account those externalities in the real price of the fuels that we are using right now -- 80 percent of the energy coming from fossil fuels today -- we will be able to see what the real cost is of using those very dirty assets.

MR. PILLING: Amar, I'd like to ask you the same question, because it strikes me as, it's not a flaw, because it's very well acknowledged, but it is a curiosity, let's say, of these accounts. And, so, for example, if you are Gabon, a country I visited recently, you relied on oil for income, but that oil is now running down, and what you're left with is a huge swathe of forest, which cover, I think, roughly 90 percent of the country -- a country about the size of the U.K. And now, it's all very well in the abstract to say one should invest in one's natural capital, the forest, but if you no longer have an income from oil, the temptation will clearly be to chop down those trees and to diminish your natural capital, not to add to it unless, in concrete terms, you can actually make money from that natural capital. And carbon seems to be -- carbon price seems to be one, not the only, but one of the missing elements. How do you think about a carbon price?

(Silence)

MR. PILLING: You're on mute, as well, Amar.

MR. BHATTACHARYA: So sorry. As an economist, of course, I think carbon price is the most efficient to send signals, but I equally, as a pragmatic economist, I know that you have to use all tools at your disposal. So, you know, you must think about, you know, regulations. Just think about power, for example. If the G-7 and the whole world said, we are going to phase out, you know, internal combustion engines by 2035. It's a very powerful incentive for the private sector to act. We must also think about public investment. Public investment. Public procurement, as the OECD has argued can play a very important role in shifting, you know, incentives. So, carbon pricing is very important, but we must look at the panoply of policies given the tremendous urgency now to shift from a fossil fuel-based economy to a low carbon (inaudible). The challenge for a case like Gabon or Accor Dubai, that finds new oil or new gas, it's complicated. You know, obviously, for a country which is low income, you know, you come across, you know, a pot of gold and somebody's saying, don't sell that gold, you know. It doesn't quite make sense from looking at it from the country's point of view. And the way to persuade countries is

in two ways, in my view. First, the risk of stranded assets. So, investments that have not been made, you should be able to persuade countries to make those investments you may never recoup. Investing in a (inaudible) right now is a sunken and stranded asset. So, we should persuade countries it's not a worthwhile course of action.

The second which, and more difficult, is, what if I have a lot of oil? What am I going to do with it? Well, you know, the market will determine that, and carbon pricing is one way to do it. In a similar way, putting a price on carbon will greatly incentivize countries to oppose and preserve their natural assets because, you know, you will get credit in some sense for doing it, and we need international mechanisms for it. We do not yet have a robust enough international mechanism to compensate countries for doing that, so we have to kind of, you know, create the incentives for that long term.

And the third, which you didn't mention, of course, the future lies primarily in investing in human capital. That's what will ultimately determine the future because investing in human capital will also (inaudible) for used capital. So, it is that balance of capital that is underpinning the pieces of this report that I think we have to come back, but in a very practical way.

MR. PILLING: Okay. Karin, if I can come to you and change the subject again. In a minute, I'm going to bring in some of the questions from the audience. And you're an expert on blue natural capital. And the report makes for quite grim reading, does it not? That fisheries have gone down spectacularly, and there we have, you know, what might be called the tragedy of the commons. A lot of the fish, you know, swim between nations and the incentive is to fish them out as quickly as you can while you can. And the second, this rather sort of curious funding about mangroves, which is the value of them has gone up, but the actual amount of them has gone down. And so, in a sense, what that is, I suppose saying, is that the value of the produced capital -- buildings and motorways and hotels, as was mentioned, that's gone up, and therefore, the mangroves are protecting a higher value of produced capital. But I guess my question, just to come back a bit, is, does this make grim reading for our oceans and is this irreversible, or is there anything that can be done to reverse this?

MS. KEMPER: Thanks for the question, David. One of the areas that we are very interested in and, actually, very personally interested in, is the oceans and the blue economy. And, indeed, you are right that the findings are kind of striking because, in a way, the importance of mangroves

and fisheries and blue natural capital has kind of reversed. The fisheries have declined. While one would think where there's so many fish in the ocean, so it should go up. And the mangroves have gone up when we hear that everywhere, the mangroves are getting cut down. And so, in a way, I think that it's a mix of grim reading that tells us we do need to act now around the oceans, because it shows us that over-fishing is really taking us in a direction where we do not want to go. We now know that overfishing is not just overfishing, and it has economic consequences in those areas where there's overfishing, and then income goes down for those countries. But we know that it affects the entire ecosystem, and so very, very heavy overfishing makes it more difficult to rebound. Yet, we have seen that actually, rebound is possible. So, we are not at the point yet that if we get a handle and including the subsidies that lead to overfishing, that we could not have the rebound. And I think that some of that was seen during the COVID pandemic when some fishing went down, and then you already had some recovery in certain types of stocks.

Now, on the mangroves, it's an interesting thing because in many countries, mangroves are just seen as something that is there and where you could actually build infrastructure on the coast and for that, you need to clear out the mangroves. And to show that mangroves really have a value, and that the more production you have on other investments that go up in value, the more valuable your mangroves become. We really hope that by including that mangrove analysis into the report in this way, that we can influence that (inaudible) and show that, number one, there's mangrove areas today that you want to maintain because of your investments today, but you also may want to think about the future, and again, the idea with a lot of this is to give a bit of an idea to decisionmakers of where the tradeoffs are and how they can proactively manage their natural assets and why it makes sense. So, it's a picture which shows us we can do things. It could get grim, but we are certainly on time to really steer in the right direction.

MR. PILLING: Okay. Now, a related topic. Amar mentioned giving credit for natural capital. Seychelles

issued a blue bond. An experimental blue bond, for which it got paid, I think, a relatively small amount of money. Is this the way of the future? And I want to bring in Rodolfo afterwards on a similar question.

MS. KEMPER: It certainly is one part. The World Bank was very heavily engaged in the

blue bond. We supported the Seychelles to issue it. There were also a number of other actors. It was a very interesting package, and in the end, three impact investors invested in the blue bond. As you say, it was quite small. It was $15,000,000, and you could argue, well, maybe the Seychelles could have found that money in some other way. But they really wanted to make the point that if you put in place the right governance, if you can show that you can positively well manage your blue economy, then you can attract investors into this space. And they managed to make the point. They were the first country that issued such a blue bond. And certainly, we do hope that there will be others that follow. But, of course, it has underlying policies that the Seychelles make. And that is a little bit the crux.

MR. PILLING: Was the money --

MS. KEMPER: Say that again?

MR. PILLING: Was the money for repairing coral?

MS. KEMPER: It was a blend. It was both to support the governance around fisheries, but also, part of the money was for communities. So, there's also the social angle that is in there. But it's a blend of what they have done with the money.

MR. PILLING: Rodolfo, I wonder if you would like to talk about some of the new financial instruments, you know, we're seeing and investors worrying about ESG. We're seeing green bonds. There seems to be a whole, kind of, financial and world of new instruments that's sort of stumbling. Some of it's P.R. Some of it's greenwashing, clearly. But some of it is stumbling towards some of these questions, which is how to put a value on assets that we have not valued up until now. Do you see this as encouraging?

MR. LACY: Oh, yes, indeed. For now, we know that there is a monetary approach from the financial system to address environmental emergencies as the climate, but we started to define taxonomies. It was good to see that the (inaudible) adopted the very complete taxonomy. Therefore, the (inaudible) that can be considered greenwashing if we do not, of course, have a clear framework and clear methodologies to really measure their impact. I think that the materiality of this new instrument is quite modern. But let me give some examples of these possible blue bonds, because all this (inaudible) is about removals. And we are measuring emissions and sometimes we are measuring, of course, offsets in the terms of removals, but the metrics are not clear. Because we have to remove CO2 from the

atmosphere and we have to balance our emissions, we need those projects and mangroves, for example, are very effective, very effective ecosystems to remove CO2. They grow very rapidly and they can capture CO2, or sequester CO2, in a better way than forests, for example, in the modern industry. So, it is good to expand the taxonomy to blue projects or blue initiatives because we are starting to know how to manage coastal ecosystems, marine ecosystems, and there is a way for us to really gather information about the ecosystems are functioning, and very soon, we will be able also to enhance or capture attributes, and that is a trend that is important.

There are also new, of course, initiatives to relieve our economic instruments and financial instruments. The possibilities to mitigate the greenhouse gases. And many of them, of course, are designed in a very classic way. Let me put it this way. If we started to see climate emergencies as we are expecting because we are not, in fact, reducing greenhouse gas emissions -- we saw the emission gas report from UNEP -- that was submitted to the UNEP, we'll have our reduction of 7.5 percent of emissions today, and we need to multiply that by seven times if we really want to be in the -- aligned to the world map of the 1.5 degree scenario. If we are going to do that, we need more aggressive measures, and it is important to think in the case of climate emergencies how we are going to use our nuclear power plants. How are we going to use those infrastructures that can help us really reduce greenhouse gases? So, we need to think the taxonomies in the case that we do not reduce emissions in ten years. And this is another possible way to address this.

MR. PILLING: Lots of questions coming in, so I just want to kind of whip around the panel a little bit if I can. And, Amar, can I ask you, very nicely really, what are your hopes for the Global Summit in Glasgow? What do you hope will come out of it? What do you think is realistic to come out of it? And are your hopes and realistic expectations the same?

MR. BHATTACHARYA: First of all, I think, you know, the Glasgow conference has, I think, three elements which relate very nicely to this report and whether the report, in some sense, can give impotence. The first is the recognition that, you know, we must keep the one and a half degrees in reach. And that means reaching net zero emissions mid-century in a concave way. So, not postponing to the end, but doing it in an accelerated manner. And that relates very much to the support and the relation to climate action.

The second is a strong emphasis now on adaptation and resilience, and the reason I emphasize that is, you know, all capital is not the same. And we have even produced capital. And the lengths which we produce capital and natural capital become much more important.

And the third aspect is, of course, you know, as the report has emphasized, you know, is really thinking about how do we invest in natural capital? And it's complicated because, you know, at one level, you know, it's fish stocks, as we heard. But at another level, it's local communities, you know. So, you have to go from the very macro to the very micro in this area.

So, what are the big aspirations for COP26? Well, first, that we can turn this from a zero-sum gain to a cooperative gain. Those of us who work in the climate area make the case that a low carbon future is not just a good climate future, it's a good development future. In terms of not just avoiding costs, but it unlocks new and better forms of coal. And so, if we can get COP26 to shift now to much more what you can do in a positive way, we would think it's very important and, again, as I said, the criticality of investment to actually now drive, you know, replenishment of all forms of capital and a recognition that we have to stop the destruction of capital in order to be able to get short-term gains.

So, COP 26, you know, will probably leave more on

the table than, you know, will be achieved, but that's not a failure. I think as long as we have a clear roadmap coming out of COP26 on what needs to be done, in my view, that's good enough.

MR. PILLING: Okay. Another question. This one from Rhianna Volhacker -- I hope I'm pronouncing that correctly -- from the WHO. And maybe Karin could address this first of all. How can we build a stronger argument for health at the center of human capital investments and wealth? Is health there?

MS. KEMPER: Yes, actually, the person who is asking the question will very much enjoy the part in the report that specifically brings in the linkage of air pollution on human health. There are estimates in the report that show how much actually countries could have grown if the human capital in countries could have grown globally if there had not been so much air pollution. So, certainly, we have taken that step. As we said before, we are refining the methodology and expanding the methodology with every report, but we are very conscious of it and in the case of air pollution, one can really see the relationship between all of the cardiac effects, the lung disease effects, and so on, of air pollution on

human capital and it reduces human capital. And it makes the case for better investments, both in environmental policy and also with a view to enhancing human wellbeing and increasing countries' human capital, indeed.

MR. PILLING: Okay. There's a couple of question about other indexes that maybe Rodolfo or Amar, or both, could address, and one from Aaron Tate Wimberly at Madison Street Capital. Does the human development index more appropriately economic success and wellbeing over something like GDP, and Ryan O'Byrne from George Washington University says, what do you think of alternative measures of national prosperity, like the World Happiness Report, and do they have a stronger relationship with sustainability? And there are a lot of indexes knocking about. Do they elucidate or do they confuse?

And, perhaps, I could start with Rodolfo.

MR. LACY: At OECD, we are experiencing some of those indicators, but we adopted, we created a process that we are applying now in cities. So, the first step is to envision the outcome that we really want to have. If we understand how to do it, if we have the means to really reach that outcome, for example, as I was explaining accessibility of groups and services, we can redesign the systems that we use to provide both groups and services. And with that methodology, we can have, of course, indicators that express the needs or the goals of our society. If the main objective of community is to be happy, of course, we can measure something that is related with that in order to change the reality that is surrounding us. I think that this is something that we have to try. There are some very good examples, but, of course, we have to develop an embedded this indicators in our national accounts, and this effort from the World Bank really starts measuring the wealth in a different way. It's a very good step to start thinking in new metrics and new indicators as (inaudible).

MR. PILLING: Amar, I'd like to ask you something, and it comes out of the report. And there was a map shown in the presentation preceding this panel discussion, and it showed a number of countries that have done very well. They've done very well in terms of building up and wealth per capita, I think, the period was 1995 to 2018. Countries like China, Vietnam, Cambodia, India, and Ethiopia and Mozambique, Poland, and a couple of other Eastern European countries. And then there were 26 countries, and some of them in Africa, where they'd actually gone backwards in terms of wealth per

capita. What do you think are the crucial differences between the countries that have done well, which after all, are scattered around the world -- they're not geographically, you know, all in the same place -- neither are they all at the same income level when they started -- and those that have done poorly or less well, let's say to be generous, and what are the crucial differences?

MR. BHATTACHARYA: You know, there's been a longstanding discussion and examination of why have some countries done well on the flow variables, which is growth, and, you know, that mirrors itself -- in stock way of looking at the same thing. And, you know, the World Bank has done a lot of work over the years on this to the Growth Commission, and continuing examinations, and clearly, you know, the root causes are in some sense, you know, has to do with governance, you know, countries have the ability to shape, you know, clear strategies and prevent them, you know -- and East Asia, as you know, has come to the floor on that. You know, the East Asian Miracle exercise, so certainly, governance and institutions matter a great deal, you know, as or does incentives for the private sector, you know. I mean, the private sector clearly can make a big difference and, you know, in a lot of these case, you see big contributions, and the third one is the centrality of human development. I mean, if you really want sustainable growth, you have to invest in people because they are the ones who produce the capital. They're the ones who can look after also other forms of capital, including social and natural capital. So, I think, you know, it is good that we have seen a lot of success in the developing world. I mean, by any indications, if you look at what has been achieved, you know, since World War II, we have made more progress on, you know, development progress than we had, you know, in all the periods before. But, this imbalance has to be addressed, and that's why I said that the next three decades could be the period where, in some sense, we could get more broad-based and inclusive growth, both within countries and across countries. And we have to apply these lessons that we have taken in terms of policies and institutions, in terms of the (inaudible) and contribution of the private sector in the opportunities that now lie for leapfrogging. You know, if you look at renewables, it's a leapfrogging opportunity. It's like the mobile company and the energy area. We can actually do a lot better by investing in the new technologies. So, I'm personally quite excited that, you know, we can actually make a lot of progress, you know, coming back to the role of the state, coming back to the politics, will be very important, but I think we have learned a great deal from the development experience to replicate (inaudible).

MR. PILLING: And there had been a question on that. Any comments concerning the effects of government corruption? In a sense, you've addressed that. I mean, to put this overly crudely, you know, the way that one develops is one takes natural capital, the flows from that one investment in other things; human capital, produced capital, and the more efficiently you do that, the higher you build your stock of wealth and, presumably, ability to generate future income, and the less well you do that, the less you climb that ladder. And one of the key differences is, presumably, corruption and governance, and if that money is all parked in a Swiss bank account, then it's not going to do much good in building up your human or produced capital. And just briefly, I don't know how closely you've looked at these accounts as they relate to India, because India has done very well in building up wealth per capita, and clearly, we know that it's been growing very fast. I mean, not recently, but certainly over the period examined, and yet, we also know there has been quite a lot of environmental destruction. There's been a lot of pollution, externalities that will not appear in these accounts, really, and I wonder what you saw in these wealth accounts. How they elucidate the story of India, which is, after all, one of the kind of, great development stores of our time?

(Silence)

MR. PILLING: You're on mute, sir.

MR. BHATTACHARYA: The report actually applied, precisely, those issues. Sometimes, we call them co-benefits, but clearly, you know, the growth model in India has generated lots of environmental harm and, you know, disruption of natural capital, and there are important policy implications. You look at degraded land in India. You look at the, you know, wasteful subsidies that India has put into agriculture. In the way it has managed its water systems. There are powerful lessons. But I think India is beginning to take those lessons now on both, so we are hopeful that the next page of development will be more balanced capital and much more emphasis on restoration. India has had a very, very aggressive targets in restoration of degraded land, on restoration of rivers and water bodies, and, you know, it has -- a kind of a low carbon future is a healthy future for India. More compact cities, better communities, less pollution, you know, and the heart of it for India will be the energy transition. India has the same number of (inaudible) as the United States has, but India's are, unfortunately, a lot younger and more polluting. So, getting ahold of that issue, reforming the utilities, you know, really

accelerating renewable energy, as Prime Minister Modi has committed to do. All of those are in the feasible, you know, possibility and will allow India to play a kind of a major leadership role, both on climate and on development.

MR. PILLING: Okay. We have five minutes left, which is roughly 90 seconds for the three panelists. In this year of, you know, as we're beginning to come out of the pandemic in some parts of the world anyway, I wanted to ask about what sometimes I call black swan events. Events that come out of nowhere and shocks. How much does wealth accounting throw light on an event like a pandemic and preparedness for a pandemic? Perhaps, I could ask you, Karin. It's clearly not just a pandemic. We always deal with the last crisis, but it could be something else. And is there a way of measuring, you know, the resilience to future events that comes out, or could come out, of this wealth account and methodology?

MS. KEMPER: Well, yes, there is. Of course, I can't say anything about black swan events, because the definition of the black swan is that you don't know what it's going to be. But there are some things that are not really black swans, but we just haven't thought about them. And one of the things, for instance, is if you think of pandemics that are generated by (inaudible) for instance, we do know that it is really, really important to keep ecosystems intact. You do need to do that, and you need to look at how much you are encroaching, for instance, through urban sprawl or through other ways into areas where a lot of your natural capital sits. And that goes a bit back to the question from one of the previous questions that came through the live feed on how is it linked to health, because we know that the natural system health is linked to human health and that we need to manage that, so by having the natural accounts more and more looking at how you can put policies in place to maintain your natural capital and why that makes sense, you can, actually, look a bit into the future and say, well, we know that these things hang together. What could I and should I do today to maintain my natural capital and to grow my human capital and my overall prosperity? So, indeed, I do think that one can have that view to the future, which is why this time, we really gave it a future theme in the report.

MR. PILLING: Right. And, Rodolfo, would you have anything to add to that? Can we measure resilience? Should we be trying?

MR. LACY: We have to do it because what we are expecting from this climate change

are tipping points. There are, in fact, like pandemics. I remember, for example, from Harry Manual opinions paper, the description that up to two degrees, we could have the same climate that we had (inaudible) with our El Nino permanent situation. And that means a tipping point. Another tipping point that we are expecting very soon, perhaps in 50 years, is these are the last of our coral reefs, massively. If this happens, as you know, the coral reefs, as mangroves, are like fishing (inaudible) and we will be facing a complete depletion of fisheries. And that is a tipping point that we don't know how to, of course, the society will react, but many, of course, coastal populations will migrate, and we have to be prepared for that. So, we need to measure how resilient we are to those events, measuring, of course, the number of dead people because of extreme events, the people that is migrating, the people that is reducing the quality of life because of heat waves or extreme weather events that are changing their activities in the agricultural sector and the grocery sector inside cities. So, these new metrics are very useful to look at the most important part of the elements that are sustained in life, but also giving those comfort that we are living and enjoying.

MR. PILLING: Okay. I think that's the perfect place to end what I think has been a fascinating discussion. I'd like to thank Brookings. I'd like to thank the World Bank. And I'd like to, obviously, thank the audience, but I'd also like to recommend that they really do download and look at this report because if you're only looking at GDP, you're really only looking at half the picture, at best, and this report will help you think about the world differently and fill in some of the blanks, and it will raise a lot of questions, as well as answer them. But that is no bad thing. Thank you to all the panelists and thank you to Brookings. Thank you to the World Bank. Thanks very much. Bye-bye.

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