CLAUDE GRUNITZKY: Good morning, good afternoon, good evening, everyone. I'm so happy to see you again on our True Africa University and MIT Center for International Studies webinar series. This series is all about sustainable development in Africa.

For those of you who have actually been following us since the beginning, we started on March 4th with a discussion around The Great Green Wall, one of the most exciting projects happening in Africa at the moment. The following week, we discussed creative industries in Africa with Taiye Selasi. And then last week, we had Iyin Aboyeji, who is one of the most successful and interesting young entrepreneurs on the African continent. He actually created two companies, including one unicorn that is the pride of digital Africa, at the moment.

This week, we have a very, very exciting program that I have to say, I've been very much looking forward to because we have a webinar about sustainable development in Africa, with the one and only Professor Jeffrey Sachs. Now, it was really difficult to actually explain, in one sentence, what this was going to be about. But I took a stab at it when I said we would talk about what types of new partnerships can lead to African development.

Now, there's a lot of different partnerships, there's a lot of different ways to define African Development, and Professor Jeffrey Sachs is one of the most famous economics professors, one of the most famous economists, one of the most famous policymakers in the world. He's also a best selling author. He's an innovative educator. He's a global leader in sustainable development. And he's widely recognized for bold and effective strategies to address complex challenges, including debt crises, major diseases, such as even the pandemic that we're dealing with. He wrote a book about escaping extreme poverty, and really he's been a leader in a lot of the environmental issues that the African continent is dealing with right now.

Many people know Jeffrey Sachs because he created the Earth Institute at Columbia University. He's currently the director of the Center for Sustainable Development at Columbia University, where he holds the rank of University professor. This is the university's highest academic rank. Jeffrey Sachs held the position of director of the Earth Institute until 2016, and he's currently the president of the UN Sustainable Development Solutions Network, working directly with the heads of the United Nations on actually implementing solutions across the world, Africa being one of the most important priority areas for the UN at the moment.

Professor Sachs has authored three bestselling books, and many other books, but three of them were bestsellers, including *The End of Poverty,* which came out in 2005, and which had a huge impact on me back then, and which I still refer to sometimes, and I may talk about it in the Q&A section later on. *Commonwealth: Economics for a Crowded Planet,* and *The Price of Civilization.* The bio is about 10 times the length of the one I've just read, but it's just a really, really warm welcome that I want to give Professor Jeffrey Sachs, who's agreed to lead the way in explaining what some of the key issues are, with respect to development in Africa, and our specific focus on sustainable development in Africa.

Now, I'm Claude Grunitzky, I created True Africa University because I wanted to help find actionable ways to nurture Africa's talent. I'm a graduate of MIT. I've created several media companies, including Trace and True Africa. But this is really the platform, we hope to educate thousands and eventually, why not millions, of young Africans online. The MIT Center for International Studies is supporting this initiative-- this webinar series-- which is lasting 11 weeks. They are the sponsors, they are partners, they are the catalyst for a lot of this happening. And the MIT Center for International Studies aims to support and promote international research and education at MIT. We produce research that creatively addresses global issues, while helping to educate the next generation of global citizens.

If you want to visit the website, it's cis.mit.edu. The MIT Africa program, which is based in the MIT Center for International Studies, empowers MIT students and faculty to advance knowledge and solve the world's greatest challenges, by connecting them with leading researchers, companies, and other partners in African countries. For more information, visit misti.mit.edu. That's misti.mit.edu.

And finally, True Africa University is aiming to become a Pan-African learning community committed to accelerating the sustainable development of Africa by mobilizing a global network of academic, industrial, and institutional partners, MIT being one of them. Our website is TrueAfricaUniversity.com. And with this long-- this way too long intro, I want to welcome Professor Jeffrey Sachs.

JEFFREY SACHS: That's not too long. Claude, that's not too long. Not about me, but about all the great things you're doing, and all the great things that the MIT Africa program are doing. I think you should just go on and on, because it's really fantastic, your initiatives. And I'm so happy to be part of your webinar series to speak about sustainable development in Africa this week. And I look forward to our discussion, which will follow some brief remarks because I'm not going to give a long, boring lecture. I hope it's not a boring, short lecture, either.

I want to talk about why I think Africa can and should really take off in the next few years, in a way that I think China exemplifies and actually shows the path. Because China really set a standard for, what is the pace of development that is possible? And by looking at what has happened in China during the past 40 years, I think we gained some real insights into what can and should occur in Africa in the coming years, to end the chronic poverty, to accelerate tremendously the education, the technology development, the rollout of new companies, the entrepreneurship, it's happening. I think it can happen in an even faster rate.

And what you said about True Africa University playing a role to spur the massive access to quality, high level higher education, is part of the story. We can just do so much now, with the tools of the digital age, that make it possible to move much faster than in the past. And that's really the basic theme that I would like to emphasize. To do that, I want to show a few pictures. I'm going to share my screen and say a few words about China's development, and then make some analogies to Africa's situation today.

Africa as a whole, by the way, taking North Africa and sub-Saharan Africa together, has about 1.4 billion people. It's about the same size population as China. And I think with similar prospects. A little bit more complicated because Africa, through the colonial inheritance and history, is 54 countries. China is one, although one that is also highly diverse, and actually quite decentralized in a number of ways as well, at the provincial level. But no doubt, politics is harder in Africa because of the number of countries, and therefore, the amount of coordination. So I put a lot of hope in the African Union, and in the single market that is being developed, and believe that strong integration of infrastructure, and economic life, and social and cultural life in Africa will be a huge, huge help for everybody on the continent.

So let me share my screen. And let's talk about a few of these basic points, if I could. And thank you for your beautiful logo, and the chance, again, to be with you. So we're talking about what new types of partnerships. One key partnership is between the private sector and the public sector. Another kind of partnership is across the African countries. And a third kind of partnership is between Africa and the rest of the world. And I want to start out with this view. This is a view of China. Some of you may recognize it, actually. We're standing in what's called The Bund of China, or near The Bund in Shanghai. And looking at Pudong across the river. And what you see in this picture from 1990, is rather undeveloped, low level, low scale of buildings in Pudong, before Pudong's development took place.

So take a look at the picture, 1990. I can tell you that in 1994, my wife and I were visiting Shanghai, and we were taken to a demonstration, a kind of maquette architectural vision of what Pudong could be. And we were shown a large wooden model of the future of Pudong. And they showed us a picture looking at that island across the water, that looked something like Manhattan. And I didn't laugh out loud, but I thought it was a little bit exaggerated, to look at that and say, OK, we're going to have Manhattan in the future.

So 20 years later, I'll show you Pudong-- actually, in 2010. So even a decade before now. That's Pudong. The same place you were looking, and the same view from before, a nighttime vision of Pudong at night. And indeed, it's Manhattan-plus that you see across the way. And we were just there, actually, weeks before the pandemic hit, and before all of this lockdown started. So we've seen it recently, with our own eyes. It's even more spectacular.

So this is 20 years, from this to this. Why is that important? It's important because it gives us a sense of timeline. A sense of what is possible, with rapid economic development. In the case of China, the annual growth rate between 1990 and 2010 was about 10% per annum. So at 10% per annum growth, that is a doubling time of seven years. So if you take 21 years between these two pictures roughly, that's three doubling times, or an eight time expansion of the economy in that period. I don't know whether Africa is going to achieve 10% per year economic growth properly measured. I would say it should be at least 7% per year, which means a doubling time of 10 years, which means in a 30 year period, an eight time growth of output.

This is the scale of change that we need, and that I believe is feasible. Currently, Africa's growth is of course much slower than that. I put aside COVID for the moment, which has been a disaster for the world. The growth was between 3% and 5% per annum. Respectable, but not really breaking out of poverty. Certainly not out of rural poverty, at the rate that should be occurring. And with lots of stresses and strains, and lots of variation across the continent-- so also a little bit hard to generalize-- but not the rate of development that I think should be aimed for.

Now, this is a map. The blue is the water, so it's a little hard to see on the screen. But it is a schematic that's showing three metro systems in China in 1990. Same theme. So in 1990, there were metros in Beijing, Tianjin, and Hong Kong. Fast forward to 2020, you can see dozens of urban metro systems, all through the Eastern Seaboard, and central China. This is, again, a period of 30 years of complete transformation of the transport network.

Another schematic. The map on the left is 2008, poorly reproduced, but it has a few tiny, fast rail linkages. A decade later, just a decade later, there have been-- I think it's more than 20,000 kilometers of fast rail that were built during the decade. I'm not talking about during the half century. I'm talking about during the decade. And this has, again, transformed China's core infrastructure. Urban metros, intercity fast rail, often at 220 kilometers per hour or faster. And this has now permeated the Chinese landscape, connecting the more than 100 Chinese cities of population more than one million people.

And incidentally, in 1980, China was 20% urban, 80% rural. As of today, it's about 65% urban. So in a 40 year period, China went from about 20% urban to about 65% urban. That goes along with rapid economic development, and a rapid increase of living standards. And the end of extreme poverty in China, which fell from about 80% measured extreme poverty back in 1980, to zero, according to the official data, as of the end of 2020. China celebrated the end of extreme poverty last year.

Now, China just unveiled last week, the 14th five year plan. And as China has been emphasizing at least since 2014, the next stages of China's development are advances in cutting edge technologies. Seven were mentioned for the next five year plan. Artificial intelligence, quantum computing, advanced semiconductors, neuroscience and brain science more generally, genomics, clinical medicine, and explorations of deep space, deep earth, and the deep sea, and the polar region. Very impressive, but actually on course because China has a massive expansion of science and technology.

Now, to give you some comparative sense of sub-Saharan Africa, and emerging Asia more generally-- because this was the easiest comparison, grabbing some data from the IMF's World Economic Outlook data set-- emerging Asia is China, and India, and Southeast Asia. So interestingly, back in 1980, measured in international dollars, Africa's GDP in international dollars, around $3,500 measured in 2017 units, was actually higher than emerging and developing Asia.

But look at the difference of trajectory, between 1980 and 2020. And China is the great driver of this difference. In emerging and developing Asia, and largely led by China, there was roughly an eight-fold increase of per-capita income. In sub-Saharan Africa, not even a doubling during the period. So a vast difference of performance, a lost set of decades, debt crisis, AIDS crisis, structural adjustment era of the IMF and the World Bank. East Asia took off. And to my mind, the main point I want to emphasize, is that's the role model for the coming years.

And if we look at how that was done, I think the most fundamental point to say, is it was done with massive investment. The investment rate, which was similar in sub-Saharan Africa and emerging Asia at about 27% of national income back in 1980 diverged. In sub-Saharan Africa, the investment rate remained between 20% and 25%. In emerging Asia, it reached about 40%. In China, it reached 50%, before starting to come down a bit. So massive investments. Investments and what? Investments in three areas.

First, investments in infrastructure. Power, connectivity, rail, road system, water, sanitation. Massive infrastructure investment. Second was massive investment in people, especially in young people. Especially in education and health, with a very significant rise of educational attainment, years in school, quality of education, and health. So huge investment in human capital. And of course, a very, very big investment in the industrial sector, especially the manufacturing sector. And both state enterprises and private enterprises. And heavily for global export markets.

This also shows up in a significant difference of saving rates, partly because in East Asia, as growth took off and incomes rose, a rising proportion of that income was saved. Whereas in sub-Saharan Africa, growth did not take off. And so there wasn't that added cushion for saving. But in the East Asian countries, the national saving rate rose from about 25% to about 40% of national income. Whereas in sub-Saharan Africa, the saving rate stayed at about 20%. I think that this is not the cause of rapid growth, but more is an amplifier of massive growth, and caused by the rapid growth. Because as I said, the rapid economic development in Asia meant rising incomes, of which a rising proportion was saved by households and businesses.

Now interestingly, one of the things that China famously did, of course, was the one child policy. And there is-- they realized that population was completely exploding in China. China could-- was on a trajectory, not of 1.4 billion people, but to reach 2 or 3 or 4 billion people in the 21st century. And Chinese policymakers in the early 1970s, realized that with both the incredible pressures on the natural environment, and the fact that with so many children and typical Chinese household-- six, on average, into the 1970s-- it was very hard for the children to get the kind of education that they needed. So Chinese policymakers implemented what became called the one child policy. It wasn't quite that, it depended on all sorts of issues of urban versus rural households, and different categories. But basically, the fertility rate came down very, very sharply. Fewer children, and much more investment per child.

So into the 1980s, the fertility rate fell below three. And then after 1990, the total fertility rate fell below two. Whereas in sub-Saharan Africa, there's a very gradual decline in the total fertility rate, mainly because as girls receive more education, they are marrying later, joining the labor force of course. And as households are more urban-- because of course, Africa is becoming more urbanized-- this also leads to the choice of fewer children. But the total fertility rate in sub-Saharan Africa remains almost five. It's about 4.8 right now, on the latest data. That means a still very rapid growth of population, it means that a lot of kids are not getting the full schooling.

So China, having one or two kids in a household, invested incredibly heavily in the education future of the one child or the two children. And that changed the enrollment patterns dramatically. Starting especially in the 1990s, girls enrollment rates at high school level soared. This has been a very big deal. By 2010, the secondary enrollment rate of girls was at 90%. In sub-Saharan Africa, it still is probably about 40%. Secondary completion rates are still low. Maybe overall completion rates 30%. And with such low levels of secondary school completion, and still with so many girls unable to finish a secondary education, it means that it's very hard to achieve the investments in human capital that are absolutely essential for the China-style takeoff. But China did have this fertility reduction. Education and urbanization are the keys. And that gives an extra boost to development.

So where are we today? Of course, Africa lags the rest of the world in critical infrastructure. This is a map from *The Economist* magazine in 2019, showing the rate of electrification in sub-Saharan Africa. And what we know, is that large parts of sub-Saharan Africa, especially the rural areas, are still without electricity. But we also know that solar power has declined so decisively in cost, that it is now affordable to have universal access to electricity. Either on grid or off grid. And we should be aiming for that through a massive, massive scale-up of investments in power generation, and in the distribution grid.

This is a map, also, for 2018 of broadband penetration. This is, in this case, measured as access to 4G mobile broadband. And again, in tropical Africa, meaning sub-Saharan, but above South Africa, the rates of 4G penetration, as of 2018-- and I don't think it's changed decisively, though of course, there's more-- was on the order of nothing to a few percent. So connectivity is also lagging, even though we know that digital technology now is absolutely essential for households to have basic services, whether it's health or education, or access to government services. To have access to banking services. Or for businesses to be running operations to be monitoring their core operations, connecting with customers, and so on.

So digital connectivity, in addition to electrification, ought to happen not at a gradual measured rate, but ought to happen at a breakthrough rate, like those breakthrough rates that we saw in China. We need a connected grid. This is a mock up model of grid connections that would be needed for a full electrification of Africa. It is a scheme of engineers in China in an organization called GEIDCO-- Global Energy Interconnection Development Cooperation Organization-- which is a very, very clever think-tank of the China grid, showing how to make interconnections at a continental scale. So I would put this, also, at a very high level of Africa's priorities for the coming years, to complete an interconnected, continental-scale grid, that can carry renewable energy from anywhere to anywhere. Because with an intermittency of renewable energy, we need a geographically connected grid.

There is a lot of progress. The submarine cable connecting about 24 countries circling Africa, is a consortium of telecoms, Facebook, and others, to Africa. It's going to make a big difference in boosting, at least at the port at the landing site, the access to enormous bandwidth that can support 4G and even 5G digital, in the coming years. This has to be complemented with roughly $100 billion of investments in fiber on land. But frankly, what is $100 billion among friends these days? It's nothing. The US stimulus package is $1.9 trillion, and it's the third stimulus package in a year, we've spent $5 trillion.

So to think that it would be hard to finance $100 billion for a full fiber network of Africa would be mistaken. It's actually within reach. And Africa as a whole should borrow that sum, if it can't get the direct financing to complete the overland network, that will connect with the increasing coverage by the landed internet, global internet backbone.

So here are the priority investments that I would argue for. Full electrification, definitely this decade. Full digital access, at least 4G, but getting started in some places at 5G. Of course, all children in school through upper secondary level. Blended, meaning that some schooling, inevitably, is going to be online. Other schooling is going to be brick and mortar. But every child in Africa, just as a basic norm, should be completing 12 years. This is the SDG 4 standard. And Africa has a lot of catching up to do. But because of the possibility of a massive expansion of digital learning, it's within reach.

Similarly, we need a blended model for universal health coverage, telemedicine, community health workers, local health systems. This is SDG 3.8. Universal health coverage, that's also within reach during this decade. We need low-cost, online higher education, that can reach hundreds of thousands of African young people, to bring in higher education everywhere. And again, the online world enables a breakthrough, in ways that were not possible simply a few years ago.

I would also urge a transport model that is based, from the start, on aiming for low car ownership. You don't need cars, at least private ownership. And I'm a delighted Manhattan resident without a car, in a city where walking, bicycling, metro, or car sharing, through the Ubers, or the Yellow Cabs, or others, is the right mechanism. The reason I emphasize this, is that countries have spent and wasted so much time, and effort, and money, to have high automobile ownership penetration. We can leapfrog that 20th century transport model. Save a lot of time, save a lot of money, and still have quality transport, based on digital car-sharing new models. By the way, all transport is going to be electric very soon. And so, this also means the end of dependency on petrol for transportation.

So some of the financing guideposts that I would suggest for this. We need Africa Union-wide strategies. We need a lot of private providers of services, infrastructure can be heavily private-provided. Education, health, of course power, connectivity. But it should be public financed and regulated, to ensure universal coverage. This should be based on large scale borrowing and direct investment. And then rising saving rates over time. I think we need a major increase of capitalization of the African Development Bank, to help finance all of this. I think important financing needs to come from China, Japan, Korea, EU, and the US.

And one thing I would say, is the US seems dead set on having a Cold War with China. Completely ridiculous. Complete waste of time. Africa needs close relations with China, that's for sure. But not exclusively with China. Africa needs good relations with all major economies, in all major parts of the world. Africa has no natural fight with any region. And so Africa should be looking at financing and infrastructure partnership with China, with Japan, Korea, European Union, and the US. And not to be made to choose one side or another, in some absolutely bloody-minded and completely unnecessary Cold War thinking.

And of course, Africa needs to increase the home-based production of the hardware and software of the new infrastructure. One of the things we're seeing from COVID-19, is you better produce your own vaccines on the continent, because you can't rely on international trade, sad to say, to provide vaccines elsewhere. Today, India suspended the export of vaccines, because it wants more Indians being vaccinated. We need more production of solar panels, of wind turbines, of software. Of course, indispensably for the digital economy coming out of Africa, and that's happening. And it can happen even faster.

Last point I wanted to make, again, on the China front. This graph is from *Bloomberg,* called the Huawei Barometer. Who is boycotting Huawei, who's on the fence, and so forth. I want Africa to be partnering with China, not scared away by US Cold War rhetoric and thinking. Because first of all, China knows better than any other major economy, how to grow fast. China provides low-cost infrastructure, lower cost than any other place in the world. China helps to provide financing, and all of this means, no need to pick fights or pick sides. This is a matter of partnership of Africa with all parts of the world, not one side or another.

So let me stop there, Claude, and turn it back over to you.

CLAUDE GRUNITZKY: Well, thank you so much, Jeff, Professor Sachs, if I'm going to be formal.

JEFFREY SACHS: Well don't be formal.

CLAUDE GRUNITZKY: --for wonderful presentation. Jeff, you and I are both optimists. I think that's one of the reasons we get along. And I told you how much your book, *The End of Poverty,* which really was a seminal book, how much of an impact it had on me. And one of the things that you said in that book, was that you felt that extreme poverty could be eliminated globally, by the year 2025. So that was in 2005, and you said in 2025, extreme poverty could be eliminated globally. And so I guess we're four years away from that deadline, and it hasn't really, really happened.

And as a native son of Togo, last week we actually discussed another book, called*The Prosperity Paradox,* by the late Clayton Christensen, with Efosa Ojomo, who's a Nigerian author. He was a student of Clayton Christiansen's. And one of the things that really, were really very sobering for me, in reading that book, *The Prosperity Paradox,* was the fact that 4.3 trillion in development aid, has flowed to Africa since 1960. But most of our African countries are still poor.

And actually, if you look at those 54 countries that you mentioned, Jeff, 20 of those countries are actually poorer now, than they were in 1960. So your optimism and my optimism for Africa, versus the reality of where things are on the ground now, how would you look at the prospects for the next 20 years, given where we are now?

JEFFREY SACHS: I'm going to assert our optimism for both of us because I don't think that there is reason for pessimism. By the way, all those numbers about the trillions of aid and so forth-- if you actually divide it by population, and over the number of years one's talking about, it's not very much. I can assure you, the world's never been generous to Africa. Not for the last 500 years. And all this development aid, fine. But never generous.

I've spent a lot of my time begging for help, when Africa really needed help to fight AIDS for example. And I helped set up the Global Fund to Fight AIDS, TB, and Malaria. We got funding, but boy oh boy, it was not easy to get the levels of funding that are really needed. So I would say the following. First, we're not going to end poverty by 2025, but that doesn't mean that it wouldn't have been possible. It just means that we never made the consistent effort. China actually did end poverty by 2020, and most of Asia has had a huge decline of poverty, and actually, Africa has had a significant decline of poverty, as well. But nothing like the rate that could be accomplished.

What would it take? It would take a massive increase of investments, of the kind that I'm emphasizing. Investments in people, investments in infrastructure, and investments in business development. There's no fundamental barrier to this, because the amounts that are needed are really modest, compared to the size of the world economy. And there's nothing intrinsic that says China can grow at 10% or 8% per year, but Africa can't. There's no deep reason why the same cannot be experienced.

So what happened? Well, of course, many things happened in this period. Africa did not receive the kind of financing that it should have. Instead, for 20 years, between 1980 and 2000, the programs of the IMF and the World Bank were about austerity. They were not about solutions to poverty. I know, I was arguing with them for a long time. It was only after the Millennium Development Goals were adopted in the year 2000, that the outlook changed.

Then of course, we had, in the United States, neoconservative governments. We had so many wars, where we wasted trillions of dollars, rather than development aid. We had difficulties of cooperation within Africa, because it took a long, long time to come to the idea of a single market that could really be a market in Africa. And now, even, we have a mindset issue. Which is, I would say, that African countries, and the AU as a whole, should be borrowing hundreds of billions of dollars the next 10 years, to front-load infrastructure.

Well, other economists are going to say, oh no, it's going to lead to too many problems, and a debt crisis, and don't borrow. Better not to have electrification, and so on. So we're going to have a conceptual issue, as well. I believe in front-loading these investments. I believe in moving quickly on them. I think that all of this would make a big difference.

Now, what can give us added support right now? One is that on-grid and off-grid electrification, based on solar in particular, and also hydro, could make a huge difference. The Congo basin has 100 gigawatts of hydro potential. Zero carbon, climate friendly, and should be tapped. It's probably an $80 to $100 billion program. I think that there's a real opportunity to do this right now. Solar could be developed all over Africa. On-grid, off-grid. Togo could have everyone with electrification. Microgrid, household units, mini grids, national trunk grid.

So this is the second. Digital revolution is a profound leapfrog technology. We all know it. E-payments, M-Pesa, what electronic wallets have meant for African finance and banking. African software writing, the ability to use apps, which are now pervasive of course, enables a tremendous number of breakthroughs. Young, skilled Africans, online, can work for companies anywhere in the world. This is something new, actually. There was outsourcing before, but now there's work from anywhere available. So the job opportunities and the development model are also new.

So I'm a big believer-- three core investments, I would emphasize. Get every child in school, number one. Make sure there's electricity everywhere. And make sure there's at least 4G everywhere. Then, we're really talking. Because that's the fundamental area that would enable growth at a massive rate, China-style.

CLAUDE GRUNITZKY: Well Jeff, it's interesting you say that, because the questions that are coming in-- there's a lot of questions I want to get to a few of them. Many of them are about China. Romi Sumaria says, "What about changing the paradigm of growth? The Chinese growth is looked at in terms of GDP, which doesn't factor in so many of the essential elements of equitable and environmentally friendly society. What are your thoughts on this?" And Professor Evan Lieberman at MIT says, "Well, what about democracy and human rights? Africans have said that they care about these outcomes. The China model includes neither."

So a lot of people are questioning the Chinese model, and the potential for Chinese partnerships. Specifically with one of the questions around the belt. So what would you say about that, Jeff?

JEFFREY SACHS: Yeah. First of all, never think that in 2021, one simply replicates a 1980 investment profile. So when I'm talking about China, I'm talking about two practical things. One, I'm talking about the kind of development pathway that we should be seeing as feasible, and that dramatically improves lives. Life expectancy, education, opportunities. And I believe that China's had a huge, huge, huge betterment for its people during this 40 year period. Profound. I know it, I've been visiting China for 40 years. I've seen it with my own eyes, as well as with the many, many studies.

Second, is that we now-- and the second part of the China thing is partnership with China. China is a major dynamic economy that is the low-cost provider of many key infrastructure items. So when the United States says, for example, don't invest in Huawei, think that's absurd. Africa should invest in the low-cost, high quality technologies, and not get into America's Cold War game, which I do regard it mostly as an unfortunate game.

So these are the two senses that I'm referring to China. Both as one of Africa's investors, partners, financiers, technology providers, trade partners. And second, as illustrative of the kind of large-scale, rapid transformation that's possible. But I would say, starting today, digital and renewable, which is not China's path, is much better than China's path, which was coal. And to some extent, analog. At least until maybe 15 years ago.

So I would say, base today's development strategy on a digital and renewable strategy, so that one doesn't ever have to get into that highly polluting pathway that China indeed adopted, which was basically the America's Japanese pathway of the 1950s and 1960s. I've urged China for years and years, go green. And they're going green now, finally. They finally announced that they're going to fold decarbonization before 2060.

Also, every society has its own political cultures. So nobody follows anyone else's model. China's political model actually dates back to 221 BC, when China was unified in a centralized unification, under emperor Shi in 221 BC. Shihuangdi. And it's been a centralized state since then. OK, that's not anyone else's model. And it's not going to be anyone else's model. But there are important points of governance that are extremely important. Think continental scale. Make plans. Develop infrastructure on large scale. Have a planning system that is extremely important for laying out infrastructure on this scale, and on this pace.

So again, this isn't to advocate a Chinese political model, which is China's. It is not to emphasize coal, which anyway, Africa doesn't have, other than in southern Africa. It is to emphasize the large-scale investments, The planning, as part of a mixed economic system, and the importance of good, close partnership. With both Chinese businesses, financial institutions, like the China Development Bank, and government-to-government cooperation.

CLAUDE GRUNITZKY: I think we have time for maybe one or two questions. I'll combine two that actually came in. Nassim Kader says, "Would you talk about the Belt and Road Initiative, and how much it's driving infrastructure growth? Because that's so central to China's policy with the developing world." And then Evan Lieberman, in the follow up question, he pointed out, "South Africa has done much of what you said is necessary, with respect to infrastructure, education, and health investment. But growth has been pretty much anemic, so what explains this?" So, if we can perhaps have one answer for both questions, and maybe we'll get to a final question before that.

JEFFREY SACHS: Yeah, great. So the Belt and Road Initiative is a huge undertaking. It's fortunately being greened as we speak. Another point, because China was investing in dirty technologies in the partner countries like Bangladesh, Pakistan, and others, because those countries were asking for dirty projects. Coal fired power plants is a quick scale up. And China was basically going along with that. And I think, under a lot of rethinking and a lot of pressure, rightly so, they have reverted to green standards. So I think the Belt and Road Initiative is an important one, and would be very important for Africa. Whether it's literally belt and road, or other forms of cooperation, is promising.

When it comes to South Africa, of course, it's a complicated story beyond a few soundbites. But I think that the legacies of apartheid and the very, very weak education in many parts of South Africa since, need a major upgrade. It's been a big struggle, and South Africa had very-- had poor leadership in many years. It also had the AIDS pandemic. It had many problems. The legacy issues were significant. It also has relied too much on its fossil fuel resource base. And I think there are lots of reforms that my South African friends and colleagues tell me are long overdue. But I'm neither qualified nor able, in a very short period of time, to give you a definitive answer on that.

I don't see barriers in most of Africa. First of all, there's no fossil fuel legacy, the same way there is in South Africa. Economic structure is very different. Geography is very different. Potential for catching up is very different. So I don't even think that the structural challenges are that highly indicated by the South African case, which is a remarkable country with a very singular history structure, and set of challenges that it faces.

Claude-- Claude you're on mute.

CLAUDE GRUNITZKY: Yeah, the usual Zoom thing. Jeff, if we can get a quick answer to this question, from Orily Earts, who says, "What about investing in agriculture? A key to growth might be Africans providing their own food, as opposed to importing everything." Is that something that you can answer pretty quickly, agriculture? Because it it wasn't a big part of the presentation.

JEFFREY SACHS: Absolutely. Agricultural productivity can rise sharply. Agricultural employment should fall sharply. Just to be clear, what African agriculture lacks-- reliable water, capital investments, it's largely rain-fed, insufficient irrigation, insufficient soil nutrient management, insufficient mechanization. It's very basic. And a lot of poverty. And people who are right now farming basically with a hoe, no irrigation, on rain-fed agriculture, on half a hectare-- and that's a lot of smallholders-- will not escape poverty that way.

The idea of African agriculture is not to employ vast numbers of Africans in agriculture, in my opinion. The idea is to dramatically increase the production. That is feasible, but it requires, in my view, a change to higher capital intensive. Meaning irrigation, meaning more mechanization, meaning precision agriculture fertigation and so forth, integrated pest management systems. But I would think larger farms over time, and people moving to cities. Because I do believe in urbanization as being both the inevitable, that's Africa's pathway, but also as favorable tremendously to quality of life, and to provision of services. Because it is why most of the world lives in cities, indeed, is that that is where productive employment and delivery of services is highly favored.

So Africa has a legacy of very small holders on tiny plots, unmechanized, living in poverty. And that is not the future of African agriculture, in my view.

CLAUDE GRUNITZKY: Well thank you so much, Jeff-- Professor Jeffrey Sachs, for this talk. I feel like could've needed an extra hour, because there are so many questions that are unanswered. I'm a little bit frustrated, because there's so many interesting dialogues going on in the chat. But we do have to wrap up. And I want to thank you all for participating, for asking questions, for weighing in. I want to thank Jeffrey Sachs for giving us this time, his insight, his very optimistic view of Africa.

Next week, we have another webinar, next Thursday at noon, Eastern time. It is with Amah Edoh, who is a professor at MIT. And she's going to be talking about how Africa's place in the world can be negotiated and articulated. That's going to be extremely interesting as well. And again, I want to thank the MIT Center for International Studies for hosting this webinar series. I want to thank MIT Africa, for always being in our corner, and making sure that we get promoted and people spread the word on True Africa University.

Again, to Africa University is looking to accelerate sustainable development in Africa. And we are very, very lucky and fortunate to have partners like Jeffrey Sachs. And we have many, many other people who are going to be contributing to this effort over the next few months. Jeffrey Sachs, this presentation will be on our website, TrueAfricaUniversity.com.

I want to wish you all a wonderful evening, a great afternoon, and a beautiful day, if you're just starting your day. Thank you so much.