THE BROOKINGS INSTITUTION

FALK AUDITORIUM

SPURRING PRIVATE INVESTMENT IN HEALTH R&D AROUND THE WORLD

Washington, D.C.

Thursday, March 30, 2017

PARTICIPANTS:

Opening remarks:

JOHN VILLASENOR
Nonresident Senior Fellow, Center for Technology Innovation
The Brookings Institution

Presentation of results:

DARRELL WEST
Vice President and Director, Governance Studies
The Brookings Institution

Panel discussion:

MODERATOR: JOHN VILLASENOR
Nonresident Senior Fellow, Center for Technology Innovation
The Brookings Institution

AMANDA GLASSMAN
Chief Operating Officer and Senior Fellow
Center for Global Development

LOYCE PACE
President and Executive Director
Global Health Council

H.E. PHAM QUANG VINH
Ambassador of Vietnam to the United States

* * * * *

P R O C E E D I N G S

MR. VILLASENOR: So, if it's okay, I'm going to kick things off here. I'd like to start by thanking everyone who is here in the room as well as all of those who are watching the webcast at this moment. I know all of you are busy so I'll try to make sure that the session today is as informative and interesting as possible.

So we're here, the foundation for this event here is the publication of a paper that we just put out yesterday on looking at heath governance capacity. But I thought I'd give a little bit of foundation, very, very briefly and then my colleague, Darrell West, will provide quite a bit more detail.

This is in the context of a project that we launched last fall, aimed at spurring and looking at the issue of private investment in global health research and development. And the premise being that as vital and important as government, public sector investment, is on these issues that it needs to be and is, in fact already, but needs to be even more so complimented by a private sector investment. And that there are mechanisms that we can identify that can make the environment more conducive to increased uptick in private investment addressing these important challenges. So, that is the broad theme for the topic.

And so, the way the event today is organized is my colleague, Darrell West, will provide an overview of some of the findings of this first report that we've put out. Then we'll move into a panel session with three absolutely terrific panelists that we're fortunate to have and I'll introduce them when they're up here after Mr. West speaks. And then, I'll ask some questions of the panel and then we will open it up to questions both from the room as well as from people who might be watching on the web cast. With that, I will hand it over to Darrell West who will provide an overview of our findings so far. Thank you.

MR. WEST: Thank you, John and thank you for showing up. Those of you who are here have a paper copy of the report. Those of you who are watching online, you can download a copy of the report at the Brookings.edu website. We also have an interactive feature on this website. You can click on each individual country and get more detailed responses for that country.

John provided the general context of this study. I want to start with two quotes that I have here on the board, both of them come from Lancet reports. The first one basically says, "neglected

tropical diseases cause around 534 deaths every year, sharing a similar burden of disease to either malaria or tuberculosis. An estimated 57 million disability adjusted life years are lost each year to neglected tropical diseases". And then the second quote is: "The returns on investing in health are impressive. Reductions in mortality account for about 11 percent of recent economic growth in low-income and middle-income countries as measured in their national income accounts."

And I want to just to pose these two perspectives. On the one hand, they're showing that we have a great need for more investment in health R&D and then secondly, when that investment does take place, the rate of return is very positive. Both in terms of the health of the people affected as well as the economic growth for the country as a whole. So, we wanted to undertake a project to try and take advantage of those two insights and think about ways to improve investments in global R&D.

As John mentioned, this is the launch of this particular project. The paper we put out today is the first of six papers that will come out over the course of the next year. As this slide shows, there are going to be a number of different aspects of the health R&D linkage that we look at. Other papers are going to be looking at the return on investment, the spending flows and the household benefits of R&D investments. So, we want to use the research that we're undertaking to inform policy makers, investors and thought leaders and therefore help to drive change in the ecosystem as a whole.

So, our first paper is focusing on the health governance angle. And we argue that good governance is a foundational condition for global health investments. That it effects the environment in which investment decisions take place. And we suggest that if investors are confident that they're resources are actually going to reach the intended audience, that it is going to boost healthcare in those particular countries, that it is going to make people more likely to invest. Governance matters because it relates to the ability of countries to absorb new investments, there is an effect on investor perceptions and then there is a link to the way in which the system as a whole operates. Both in terms of efficiency and effectiveness.

In this particular report, we wanted to evaluate the quality of health governance. So, we analyzed data from 18 individual countries. On this slide, we list those countries so it includes places like China, India, Indonesia, South Africa, Tanzania, Uganda and Vietnam as well as a number of other countries. We look at 25 different indicators of health governance for those particular nations.

We divide the indicators into five different dimensions of health governance: management, policies, regulations, infrastructure, and financing in health systems. We argue that these are all factors based on the literature that has been undertaken. The research that other individuals have undertaken, these are the types of factors that affect investor confidence and the investment decisions that actually take place.

For each of these five dimensions, we look at several different indicators. So, under health management, we're looking at things like political stability and transparency. For health policies, we look at the rule of law. The tariffs on medical products, the nature of intellectual property rights in those particular countries. For health regulations, we're looking at the regulatory capacity, the business climate, how drugs are regulated in each of those places. For infrastructure and financing, we have indicators that have different dimensions of that. And then for health systems, we're looking at the number of nurses in particular countries, the number of physicians, some health outcome data such as infant mortality and life expectancy.

And again, we're arguing that all of these are factors that condition the environment for investment decisions. So, it demonstrates how the governance of particular countries matters in terms of these types of investments. On this slide, we show some of the results in terms of how various countries fared. For our 25 indicators, we complied them into a 100-point scale for each country and then rated the countries on their performance. Vietnam was our most high performing country. It scored 82 out of 100 points. South Africa had 81 points, China 77 points, Ghana 75 and so on.

So, as I mentioned, our full report is online. It provides much greater details on the rankings. We have an appendix to the report in which we provide the complete data that went into the analysis and it shows how each country performed on each of those 25 indicators. Our interactive website, allows you to click on individual nations to see how each one performed.

We are very interested in any feedback that you have on this study as well as suggestions for future papers that we're going to be writing. We created a dedicated email address in which people can offer us their comments and suggestions. It is listed on the inside cover of the report but it's healthrd@brookings.edu. So, you can email any comments you have to healthrd@brookings.edu.

In the conclusion of the report, we make a number of recommendations related

specifically to health governance that we think would improve a country's ability to attract investment, particularly from the private sector. And so, our recommendations include things such as improving transparency, strengthening the management capacity within those countries, lowering tariffs on medical products, expediting the regulatory reviews, and investing in the infrastructure. These are all things that we think would make a difference and improve the investment climate for countries going forward. And as I mentioned at the beginning, this is the first of six papers that will be coming out. So, among the other things that we'll be looking at are heath R&D funding levels across various sectors and how those levels have changed over time. The rate of return on particular investments, we'll be doing some modeling work that tries to develop estimates of those particular features. And then, we'll also be looking at household survey data with a goal of looking at the financial benefits of global health R&D.

So, this is just the opening wave of the project. But by the time we have undertaken all six of these papers and put them out, we're hoping that it provides a coherent set of analyses in terms of what the current situation is and what we can do moving forward to make a difference.

So, at this point, I'm going to turn it over to John. John will be moderating the panel. We have three distinguished experts who can offer their own perspectives on this. So, with that, I'll turn it over to John.

MR. VILLASENOR: OK so I'm going to start by first briefly introducing our panelists and then provide a little additional context over on top of what Darrell West just explained and then go straight into some questions. First of all, immediately to my left is Loyce Pace. Ms. Pace is Global Health Council's new president and executive director. Before joining Global Health Council, she held leadership positions at the Livestrong Foundation, the American Cancer Society. And while director of regional programs for the American Cancer Society's Department of Global Health, she was responsible for developing their first capacity building and advocacy initiatives in Southeast Asia and sub-Saharan Africa.

Next to Ms. Pace is Amanda Glassman. Ms. Glassman is chief operating officer and senior fellow at the Center for Global Development. Prior to that, she worked at the Inter-American Development Bank and also prior to that, here at Brookings. She has more than 25 years of experience working on health and social protection policy and programs in Latin America and elsewhere in the developing world.

Next to Ms. Glassman is Ambassador Pham Quang Vinh, the Vietnamese ambassador to the United States. The ambassador was appointed in July 2014 and before his appointment he held many distinguished positions within the Vietnamese government. Most recently he was deputy minister of the Ministry of Foreign Affairs in charge of relations with countries in Southeast Asia and the South Pacific and Vietnam's senior official to the Association of Southeast Asian Nations. I should also mention that the ambassador has a prior commitment at 11 o'clock so even though our program will go past 11, when he gets up and leaves at 11 it is not because he found our discussion uninteresting. We're glad to get him to come here but he had another commitment. So, he'll leave at about 11 o'clock.

So, as Darrell West was explaining, the premise here is that the private sector is an extremely important component of investments that can lead to improved global health outcomes. In addition to identifying the existing landscape, we're going to be also looking at ways policy's frameworks which can incentivize and further attract private sector investment to this area. The theory being that while everyone agrees that there are enormous social returns that come with global health investing, in order to spur increased private sector investment, those social returns have to be accompanied by financial returns that obviously drive decisions being made in the private sector. So, we're going to be looking very carefully at some of those things.

I'll also mention that we're doing this project here at Brookings but we're also fortunate to be collaborating with a terrific team of researchers at the University of Washington who will be doing some of the work associated with analyzing these really important questions. So, as Darrell mentioned, between now and basically late next year or actually late this year, we'll be coming out with a series of these reports and we certainly welcome the chance to interact with the community as those reports are published.

So, let me start. I will ask my first question of Ambassador Vinh on your right, my far left. So, Mr. Ambassador, Vietnam finished first in our rankings on the health governance capacity index. Can you tell us about how Vietnam has been so successful and what advice you might have for other countries on this topic.

MR. VINH: Thank you very much for the studies and the reports. I think the experiences of many countries here we share and we can make a reference on how we manage healthcare in each

country.

For you need the workforce as well.

And part number two is, we need the grassroot level services. This is very much important in Vietnam when the country is spreading not only in the urban areas but also the mountainous areas. So, we need the grassroot organizations and workers, including the household and the women's organizations. They are playing a very important role.

And part number three. No country can work alone without the technology and the funding, especially developing countries are having limited resources. So, we need to attract investment from both international investors and private investors. In order to do so, we need to work closely on how to provide a framework available, framework in terms of policy and legal regulations, also in terms of human resources. So, we need to work with them.

But for us in Vietnam, though we are ranking so high but at the same time we have a lot of challenges including, how to modernize our healthcare infrastructure. How to get more funding for both universal healthcare services and also high standard treatments. All of these we are discussing with potential and future investors as well. And here, we are very much important. And in order to attract private investment, we need a business environment which is favorable for them to do with us as well. Thank you.

MR. VILLASENOR: Thank you very much, Mr. Ambassador. So, my next question is for Ms. Pace. Ms. Pace, as your biography states, you have worked on the ground in more than ten countries delivering health programs and mobilizing advocates. Based on your experience, how would you recommend that governments in developing countries create an environment that can improve health outcomes? I'd add to that to the extent that you have any general comments on the work that we're doing and things that we should be looking at in this area, we'd certainly welcome those as well.

MS. PACE: First off, I think it is important to really set the stage when it comes to where we are in global health right now. There is this perfect storm that's been coming for a while. The first part of that is the burden and how the burden has shifted over time. The reality is, there's this epidemiological shift that's really sort of we're all facing head on. There's also the reality that it's becoming harder to tackle some of these existing priorities that we talk about, these hard to reach populations in say,

HIV/AIDS for example. And dealing with that at the same time, we're looking at issues like cancer and diabetes in these countries even in low- and middle-income countries. So, that's definitely one part of this perfect storm.

I think another part is the other elephant in the room, the money, the financing. That's the topic of this discussion and the fact that we've been looking at flat funding the past few years and a shift in the mix of funds, the relevance of private sector funding in particular.

And then finally, there's a political landscape which, I think, can't be ignored, not just in Washington but worldwide. And how all those things come together is very much important for private sector investment. So, I know that's obvious to a lot of us in the room but I always like to start by setting the stage and the tone for discussion at how I'm coming at all of this.

I was at an event the other day that said, private sector investments and public/private partnerships don't just make people feel good, they make sense. That's our reality. And so, when I think about what countries can be doing to improve health outcomes, it is really latching on to these public/private partnerships, which I know is already happening. So, I just want to acknowledge that from my experience, countries really are prioritizing public/private partnerships in these types of investments.

I think countries that do well are those that really see it as strategy and not just charity. And so, bringing people to the table who really understand this win-win relationship and the opportunities there, I think a lot of us are familiar with the concept of shared value, as an example. I think something else that I've seen work very well is countries that really are vocal about their priorities. And so, more and more, we've been talking about country ownership but really allowing countries to talk about what matters to them, what they see at their level, is absolutely critical. So, for example, when I was doing work in South Africa, and this is probably ten years ago now, you have the government saying look, we have a problem still in HIV/AIDS that we're trying to tackle, but we also have a diabetes problem here and we need donors to pay attention to this aspect of what we're facing too. And I think that was brave of them to step out and say that at the risk of perhaps, losing funding. I think you saw other countries do well to speak up with regards to their issues and very real problems as well.

I think you all hit the nail on the head with some of your recommendations in terms of improving or updating regulatory frameworks and really developing innovative financing mechanisms,

strengthening health systems obviously. So, I think those recommendations are spot on as well in terms of what countries can be doing. And that, obviously requires a whole of government approach, not just looking at the health sector but working with the minister of finance and other areas.

But I would also echo something the ambassador said about the whole of society approach, too. Let's not forget the beneficiaries of health services and health technologies, let's not forget the people on the ground, the grassroots, who can really help mobilize all stakeholders around some of these recommendations as well. In my experience, again, that has worked incredibly well for really advancing some of these recommendations.

So finally, I would say, I think talking more about what is working is really valuable. We can sort of present these proposals in the abstract but obviously the case studies are absolutely critical. Global Health Council members include industry and other partners that do a very good job talking about what is working. I think the more we can uplift these good examples, I know that Amanda and Center for Global Development have a lot of these as well, the better we can make the case for these types of approaches. But I think I'll stop there with those comments. I really want to emphasize, though, that it's not just on governments or countries to make these changes but it is on companies as well to think about what they can do. I know we'll get a little bit more into that as we get through the discussion.

MR. VILLASENOR: Thank you very much, much appreciated. So, Ms. Glassman, last year you published a book titled, “Millions Saved, New Cases of Proven Success in Global Health.” In that book, you discussed health innovations occurring the developing world. For example, you mentioned deworming efforts in Kenya, integrated management of childhood diseases in Bangladesh, and improving childhood education in South Africa. Based on your study of these successes, how would you recommend that governments in developing countries create an environment that can improve health outcomes?

MS. GLASSMAN: Thank you for inviting me to join that panel and it's an honor to share the panel with you, ambassador, and Loyce. So, first I think it is really a useful exercise to try and connect health system governance to domestic and foreign private investment in health for two reasons. One is, there was the Addis Ababa Financing for Development conference last year. They talked about billions to trillions and the vast majority of those funds are supposed to come from the private sector.

How is that going to happen? And another good reason to think about that is because public sector funded R&D is probably on the way down, at least in the near term. So, it is good to think about other options. But, I think, that connection needs to be spelled out a little bit further and I had a couple of questions and comments and then I'll end with a reference to “Millions Saved.”

So, first I'd like to know how the governance index correlates or explains historic research and development investments. There's the G-FINDER project that has tracked spending on R&D in a number of contexts so I think it wouldn’t be too hard to try and look at whether governance is actually a driver, and if it's not, what parts of the index might need to be modified.

Second, the title of your paper talks about a broad focus on private, either domestic or foreign, investment and I think that is appropriate. Of course, you're focused on R&D, maybe clinical trials for infectious disease related projects but as Loyce mentioned, the biggest opportunities especially in countries like China, like Vietnam, are in the non-communicable disease sector. Where it is a pressing concern, where budgets are limited, where devices and services can be made available in the private sector at scale, so I think it is worth maybe considering a broader scope from that perspective.

And then, the other issue is, if we're thinking about incentivizing private investment in research and development, I think that needs to be incentivized by the public policy and coverage and reimbursement framework that operates in that country. So, for example, I trial a drug in a given health system, of course, to show efficacy and effectiveness first of all. But, also because it is a potential market or a potential payer that if I'm successful, we'll actually finance that project. So, you're building the market while you're doing the trial. I think that is something to really explore very deeply. That's not going to be the case, really, in the DRC's of the world but it will be the case in the Vietnam's and the China's.

Thinking a little bit connected to this about the indicators that make up governance success in a health system, one thing I would say, is we should look at the pace of health improvement over time, not necessarily the level or in addition to the level and not necessarily the inputs. Because we know that just spending more doesn’t actually improve health outcomes as quickly as it might and unfortunately, our own country is a perfect example of that phenomenon. Let me give you two examples.

So, in the financing part of the index, you talk about out of pocket spending and you rank it negatively which we would do if we were concerned with universal health coverage. But actually, for

private investment, I might like a lot of out of pocket spending. Those private markets are larger, out of pocket spending is about spending in the private sector. So, that is just something to think about. Those are obviously tradeoffs that you have to make in health policy. Similarly, if I'm investing in clinical trials, I actually might not want a super strong health system initially because I'm interested in health care naïve populations, to really be able to assess what the differential impact of my drug is or my device.

So, I think all of that is very interesting and I think it goes to some of the stories. For the global health focused technologies, vaccines, drugs, and diagnostics in the area of HIV/AIDS, TB, et cetera. I think there we do have to look at the PPP models. MenAfriVac is one of the stories that we talk about and I see a colleague from PATH in the audience. But that is obviously one of the stars of the PPP experience. It's got some private sector investment, it has the Gates Foundation, has all of the governments of the region together developing a private firm of generic manufacturing in India that come together, invest in the development of an affordable vaccine and its subsequent roll out. Thank you.

MR. VILLASENOR: Great, thanks very much. So, I've got a couple other questions and then we'll open it to audience questions. These questions are for anyone on the panel so no specific preference. One of the things that we showed is a correlation between the health governance index or capacity index that we came out with and the social progress index. There is a pretty good correlation but then the question is, correlation does not always mean causation and you can weigh which way does the arrow point. So, this is a broad question but a fundamentally important one. What do you think about the connection between health outcomes, specifically, and social progress and well-being generally, and which way does the causation arrow go or does it go both ways and what are your thoughts on that?

MR. VINH: Actually, when we do the universal health care coverage and the first thing we need to do is not try the treatment but it is raising the awareness in the local community. And with all this work, the household is very much important and the grass-root work is very much important. And by that doing (sic), we're raising the education level of households in localities and by that, they themselves can take care of the diseases. But at the same time, we have the outbreak of pandemics. These are the towns that we need to work both from the central governments to the local government and the people in the community. And I think, when we have grass-root level in good place, then the management from the central government to the local government will be very much effective rather than we would be in a panic

in case of that.

So, for social progress in relations to health care it is more than just the treatment itself. It is the education, it is the acknowledgement and awareness of the people. But at the same time, they are taking care of their health care rights as well. I think it is good for each household in the management of both their welfare and their budget as well.

MR. VILLASENOR: Thank you. Any thoughts on that?

MS. PACE: Yes, I mean for me, if I'm interpreting it correctly it was actually one of the least surprising findings of the report. I think when we look at the sustainable development goals and the linkages we've been trying to create there as a community, it is absolutely about this. So even just using the gender lens as an example, improving access to education or health services is intended to drive human development of that population. We've seen that in the data, we've seen that anecdotally of people working in the field. So, I don't know if I would venture to say which one leads to the other, I might leave that to Amanda.

MS. GLASSMAN: I mean, you have some same indicators in as the social progress index so I'm not surprised to see it either. I wonder if you could look at some of your individual indicators to try and tease out whether particular policy approaches are making some kind of a difference on some of the outcomes.

MR. VILLASENOR: Interesting. The next question is, as Darrell West mentioned, when you're trying to assess health governance capacity, how do you actually measure that, right? And obviously, any one particular approach you select is subject to reasonable criticisms. But if you use that as a reason not to select any approach, then you end up never measuring it.

So, the approach that we selected, which we think is reasonable, although certainly not the only way or necessarily the best way to do it, is to consider it as having these five dimensions or components or however you want to call them. And I'll remind people again, the five dimensions were management capacity, policies, regulations, infrastructure, and financing. We just assumed they were equally important, all of them and that's a debatable assumption.

So, the question for the panel is, of these things, again the management capacity, the policies, the regulations, the infrastructure, and the financing, are there ones of those that you believe are

disproportionately impactful and important in terms of the health outcomes in the country and we'd love to hear your thoughts if any of those stand out. Or on the other hand, any of those are particularly unimportant, that would be interesting to hear your thoughts as well.

MS. GLASSMAN: I have this bias though that health governance -- that we know health governance is working is health is improving, although that is not necessarily the case from a causal standpoint. So, if I'm seeing life expectancy in infant mortality rate and the population at risk of malaria, if those things are improving over time, that to me, denotes something is working in the health system governance, although that is not necessarily the case. It could be completely explained by secular trends but you could tease that out a little bit.

I guess I'm also, obviously the amount of spending matters at some level. Generally speaking, countries that spend more do better, although once you get up over a certain amount there is no clear relationship and there is definitely a variability in performance. So, I think those things are critical. And then doing the right cost effective things. So, if you're immunizing your kids and you've mentioned some of those things. I mean, I would almost deal with regulatory policy issues very separately from the other stuff and analyze them separately just because that is the lesser known set of variables.

MR. VINH: I do agree with your comments and especially on the cost and effective (sic). I think the idea of how to use the best of limited resources especially is funding. So, the recommendation in the report about targeted investment and investment probably that would be very much important. But in all the things for in taking care of the health of the people, the role of the government will be the first one both in providing an environment of legal and policy frameworks. But at the same time in our case, the coordination within the central government and the local government would be very much important. Sometimes we have a good policy frameworks but coordination is not so (inaudible). This is a point of management that we need to focus on as well.

MS. PACE: Well, I have to say I was drawn to this heath systems dimension as something that I thought would be a driver. I was kind of surprised at how narrowly that had been defined because I'm so used to the WHO framework and the six building blocks there. And that's convenient because it captures some of the other indices I think you all were looking at like leadership and financing.

So, I was drawn to it and I think that from our standpoint is a good driver and a good indicator. But I'd be open to discussing that.

MS. GLASSMAN: Maybe, the other thing you might like is the number of universities that have programs in related areas. The number of PhD's, the presence of an industrial policy, which could go either way, that's a controversial issue in the field. How much existing market access is there for multinationals?

So, these are things, I think, that are actually more closely linked to the probability of R&D investment in general. But then again, that's why I think it's really different to talk about R&D in general and it could still be health promoting and an NCD example versus global heath R&D for diseases of the poor. That's a really different kind of business case for private sector investment and it is not a very attractive one. So, that's why we have all the PPP's.

MR. VILLASENOR: And then another challenge which you're sort of all getting at is when we're constructing these five dimensions and then twenty five indicators across these things there's obviously some cross correlations among these things. So, on the one hand you want to have a broad set of indicators and on the other hand if some of your indicators are really measuring the same thing, is it really a separate indicator? It is just an inherent challenge in some of these things.

So, I've got one more question and then we'll open it up to audience questions. So, today's report was published as part of a broader project, which I mentioned earlier, to identify ways to spur improved private sector opportunities, investment in global health R&D. There are obviously multiple ways to do that. For example, one thing is to identify new opportunities for companies to invest in developing drugs, vaccines, and diagnostics that will improve global health and also obviously make sense from a business perspective.

Another complimentary approach is for the government in countries such as the United States to introduce policy solutions and, for example, priority review vouchers are an example and you can debate how effective or not effective those are. But they are certainly examples of policy solutions that are intended to incentivize, to boost private sector investment in areas that otherwise wouldn't be as high.

Do any of you have thoughts on ways to spur increased private sector investment? What

can governments and/or the private sector, and the private sector in not only traditional profit-seeking companies but charitable foundations and venture capital, private equity community. What can people outside the government do or even inside the government do but in a way to increase the attractiveness that the private sees in this very important space. Any thoughts on that?

MS. PACE: Well, I would say first and foremost is creating the space. So, there's been this ongoing debate at the global level with WHO around the framework for the engagement of non state actors. And that's been a bit contentious because of how that's been defined, how non state actors have been defined and then how it seems certain countries are wanting to interpret that quasi-guidance. And the issue, I think, a lot of civil society has with that is related to how they can be left out of the planning process or the execution or delivery of health care services or the development of technologies and diagnostics and whatnot.

So, I think, just at a very high level, engaging in things like that that seem very wonky but I think it gets at the policy space you were talking about is really important because if some of these actors are left out. And I'm not just talking about industry, I am talking about some of these other private sector players who have found it challenging to work directly with governments because of some of these discussions. If they're left out of the conversation then there's not much more they feel that they can do. If it is just a matter of them writing a check and not really engaging in the process, I think that we all lose if we're a bit too limiting.

To be clear, managing conflict of interest is incredibly important and ensuring that everyone is behaving well in the space is really important. I think that applies to all of the actors. I think that applies to governments and industry and NGO's and a number of players. So, I think these types of conversations like FENCA are critical but we have to be able to see all sides of it and really look at the unintended consequences of having too stringent a policy when it comes to the engagement of the private sector.

MS. GLASSMAN: I think, I'll just go back to a point that I made earlier. If there is not a government payer or a private insurance payer or a global health payer that doesn't say, I will reimburse and cover if you bring me a product of the following characteristics, then it doesn't really crowd in private sector funding on its own. It requires all of this organization from the bottom up. So, I think that's what I

mean by creating payment framework where you determine what is that cost-effective technology that I will for sure reimburse if it comes to market. That would create its own thing.

The other thing is obviously there's other ways to spur greater private sector participation in health systems. It's controversial but there's health systems that look like Colombia and the Netherlands where there are private insurers that take public monies, but those private insurers have a roll, they compete with each other. There are social marketing firms where the public subsidy is five percent DKT and 95 percent is what they're making and selling of family planning products. Can a public sector buy from the private sector, either because hospitals are privatized or certain services within hospitals are privatized and I buy them? Under what circumstances am I getting good business? Am I getting a good value for money? Can I buy from a faith-based hospital? A lot of health systems in Africa will do that to cover a certain package of care.

So, I think it is all about building the incentives in the system that can allow for private sector participation but in a pro-social way. You don't want it going out of control so you have a million MRI scans or whatever it is.

MS. VINH: Actually, we do need the private investors in this one and they will play an important role in health care R&D. But at the same time, I do agree with you, that we need to engage between government officials and private investors. We need to understand the priorities and incentives of each because the government has to take care, in a broader and universal way, of the health of the people. So, we need to understand the priorities.

I remember one of the panelists said that the countries priorities would be very much important, so we need to share with them, by us sharing the understanding of the priorities of each private investor and the governments responsibilities. Then we can have matching or pairings of priorities that we are in common.

Then the second part, I agree with you that we would need a framework that we can work together. At the same time, we can have different manners of attracting investments. So, a mixed framework we know is very much important.

MR. VILLASENOR: Thank you very much. Really terrific perspectives. So, at this point, we are happy to take questions from the audience. I think there is a protocol. We have someone with a

microphone so if you want to ask a question, we have the gentleman up here and the woman here. He had his hand up first and then her next. Number one and number two and then we'll take it from there.

MR. LIGGETT: Good morning. My name is Todd Liggett. My question is specific about Vietnam. It seems as though the image of Vietnam as a manufacturing center has certainly developed since the war. Could you talk a little bit about that? I'm seeing more and more ”Made in Vietnam” stickers and tags on clothing and other items. So, what is the potential of that market?

MR. VILLASENOR: I'm sorry is there a connection to the topic of, just in context, are you asking manufacturing in general or in the context of health?

MR. LIGGETT: I think it has global context in general. I think you could address that as the pertinence.

MR. VINH: Actually for us, the economy of Vietnam over the past three decades has been fundamentally transformed. We have during the reforms for the last decades especially in terms of the economy. We move on some other models to the marketplace model, and this is the way that we extend the economy that along the market rules and regulations.

And so, as a developing country, sometimes first will be more labor-extensive industries, it is not only just manufacturing but also in operation, control and in others. We got to manufacturing. There are two parts here. Part number one, we have the last workforce of the people but part number two, we need the technologies for more developed countries. So, very much of our manufacturing is a venture between Vietnam and foreign investors. So, by that, we increase more of our economic development as well.

MR. VILLASENOR: Thank you very much. Second question here.

MS. DELANGAUCHU: Thanks very much. I'm Numbo Delangauchu. I'm health attaché of South Africa. I'm thrilled to see South Africa being second only to Vietnam’s excellency in this report. We are encouraged by that. My comment is, I do understand that governments will represent their populations in terms of priorities as all of the panelists are saying.

But, I think, there is another piece at local community level where you implore or apply what is caused the base of the pyramid approach engaging communities about defining their problems. Governments will define the priorities and the problems. But I think that the subjects of the R&D will be

the members of the communities themselves. I think partnerships at local level with those communities would be key so that whoever it is that is leading projects or R&D will work in partnership with communities guided by the regulatory frameworks and the support of governments. I think that is a piece that perhaps can be strengthened in the report.

I was wondering also on the issue of autonomy of the private sector. How you navigate that question as it pertains to economic ideological perspectives. Where the private sector, for instance, will insist that we cannot be told by governments to do, A, B, C, and D. At the same time too, the governments will say, we are the government or the state and these are the priorities and we think that R&D money should go in this direction. How would this work, actually assist, navigate those differences. I'm saying that this report is important and I'm hoping that it won't be gathering dust in shelves. I think that it should be taken yet another level to go there to educate all of the players including people at local level about just understanding how these things work. So, those are comments and a little bit of question about how to navigate the economic, ideological differences between the private and the public sector. We are number two in governance, thank you.

MR. VILLASENOR: Thank you. Thoughts from the panel?

MS. PACE: I can definitely appreciate the comments about getting to the local level and grass-roots engagements, civil society participation, however we want to word it. How you said it is better than I think any of us would have put it. And so, yes to all of that. I think relatedly, ensuring that there are sets of principals or rules of engagement is a way that I would approach that. Your question around how we can ensure everyone sort of operating from the same manual, I think is what you're getting at. And being very clear about what motivates you and why you're at the table.

Look, let's be honest, we are not all going to be driven by the same things across sectors. As long as we can acknowledge, I think where converge and diverge, then we can focus on that common ground and work accordingly. So, having clear sets of principles, I think that is something else I would add to what countries can bring to the table and frankly, I guess, what industry can too. But, if there is another directive to be added for governments is to really be clear about those rules of engagement and to put a stake in the ground. I think there's nothing wrong with that and it is absolutely essential.

MS. GLASSMAN: I'm going to say the same thing again. Because will the South African

government pay for it as part of its health system? Will that technology be included in the essential benefits plan that is articulated by the medical schemes in South Africa? That is the best way to ensure private sector crowding in for the priorities that the government has.

And that's what we, unfortunately, that I think we have not set out clear guidelines on what we will cover or reimburse whether at the global health level or not. I think you see a kind of ad hoc policy. I think you want to ask for cost effectiveness. I think you want to ask, obviously, for affordability and you want to ask for something that is going to be a game changer ideally. So, these are all wish lists but there are lots of companies out there that if they cross that line and they know that they'll be paid for it, in a certain volume, things will happen.

MR. VINH: I think that the focus on the local communities would be very much important. I do totally agree with you on that one. And on managing the different interests between the private investors and the government and local communities. Another thing that we do in Vietnam is we do not have an across the board for private funding and investment yet. So, we've taken care of the people's health that we need to do some pilot projects. And through that we developed an understanding of sharing the priorities and interests and by that the government can provide some incentives to the private sectors. So, would multiple those pilots to become more and more nationwide frameworks.

MR. VILLASENOR: Thank you very much. A question in the back.

MS. ZINNAN: Hi, my name is Sol Zinnan, I'm a consultant with the World Bank. Very fascinating discussion. I wanted to ask a question, you talked about epidemiological shift happening but at the same time, there are certain diseases that may be more profitable for the private sector to be involved in. But the other diseases, the neglected tropical diseases, for example, how can governments incentivize private sector to invest more in R&D for those diseases. So, that's my question one. I would also love to know the panel's thoughts on recent CEPI, the Coalition for Epidemic Preparedness Innovations, thank you.

MS. PACE: Amanda’s a broken record.

MS. GLASSMAN: There are, I think, a lot of people in the sector from BIO to the Global Health Technologies Coalition, to PATH, have been talking about not just the routine process of saying what I will pay for every year if I'm a payer or reimburser but also special schemes like prizes and

advanced market commitments and things like that. So, volume guarantees the way implants were bought by a coalition that worked on maternal and child health supplies.

There's lots of thinking about new and innovative ways that governments including the government of Vietnam, for example, could set up a pulled mechanism for, you name the disease priority that you may have, if that were of interest. You could give preference to partnerships with local researchers and things like that, clinical trials that were conducted in country. So, maybe we'll see more of that going ahead.

If you look at a country like Brazil, they set up their own research institutes. There is (inaudible). Those are things that The Bank can invest in which is to develop that R&D capacity in the public sector or you could crowd in the private sector. So, all of those things are out there.

MR. VINH: Actually, for developing countries, the R&D in the prevention sector would be very much important. The vaccines and all the other kind of medicines that is to prevent diseases for the people are curable diseases. This is why we have R&D centers in our country but at the same time, it depends on the different private investors. It may be the know-how, it may be the technology infrastructure and it may be coproduction. All of these we can do. It depends on the different areas of medical priorities. It depends on the different private sectors and investors. So, we work in a very flexible way so that it can meet the priorities of the government but also have incentives for the private investors. But, developing countries focus more in R&D on prevention. Higher standards of medicine and treatment, I think, in more developed countries and we need the license. Coproduction would be good also.

MS. PACE: On top of that, some of these newer partnerships, too that have emerged in global health security or even Access Accelerated announced (inaudible) this year. I think those are encouraging partnerships to see and really encouraging developments.

One thing I would say though is, in talking with some industry partners, I think we need to be careful asking them to carry all of the water especially now that things are shifting. I think if I were working in that sector I'd be a little bit concerned about everything falling onto my sector now in terms of really stepping up to the plate. I think it is good that they have been stepping up even more. I think you have companies collaborating in a way they haven't previously which is also exciting because a lot of

times for those of us who have worked at this for a while, they keep their powder dry. To see them come together is useful and productive. There still though, needs to be a multisector partnership. So, we still need to have a role for governments and other actors in that space. That is something we all need to keep in mind and push for. It needs to be a three-legged stool in my mind.

MR. VILLASENOR: Did you want to mention patent pools you said?

MS. GLASSMAN: Just these other ways to license technology to developing countries themselves to do their own manufacturing that are interesting and probably should be explored further right. That's a way to do price discrimination to segment the market. Maybe a little add that we're actually thinking about the future of global health procurement at the Center for Global Development, hope to do more work in this space as well.

MR. VILLASENOR: Great, thank you very much. The gentleman with the microphone.

MR. SCHNEIDER: Thank you. My name is Steven. I'm retired from a medical practice and just a casual participant in this forum here. I'm hearing, what I'm hearing is that we're trying to get financing, we're trying to get private sector participation and government participation. We want effective health outcomes. I'm going to try to formulate this as a question. Can we develop, or is there a program developed, where we can motivate all these players to interact together. For example, private sector company has a lot of money. They want to improve an outcome in the health care of local people which is ultimately what we all want. Incentivize those people to participate in a program, for example, diabetes. They show up at the clinic, get educated, they take their medicine, they get points. These points then go towards something they want. Either satisfaction of knowing that they are participating or maybe money is donated to a charity or maybe they're going to get a prize when they build up enough (inaudible). Develop a program is there something like this that ties everybody together and if not could we do it all ourselves.

MR. VILLASENOR: You're asking about incentivizing participation by people.

MR. STEVEN: As well as the industry. A private company has money they want spent and they want less diabetes so many they want more of their diabetes products used. Maybe (inaudible) condoms in a country with an HIV problem. Is that a practical idea?

MS. PACE: Yeah and I think it's happening. I'm looking to reps from Global Health

Technologies Coalition and PATH as Amanda mentioned over here and I know who had their hands raised. I feel like that type of example is taking place on the ground right now and there are case studies that I think we can share following this to the extent that is useful for this audience. Again, uplifting those would be very helpful. Learning from what's worked, what hasn't, and maybe that could be a part of follow-up briefs that will look more closely at those investments and the return on those investments could be useful.

MR. VILLASENOR: One of our papers will be looking specifically at returns on investments and these things so that is a great area to look at. Any other thoughts from the panel? Okay, we've got a question here and I've got you next.

MS. WINGFIELD: Thank you. Thank you very much for this panel and I really look forward to digging into these reports and the future reports as well. My name is Claire Wingfield, I'm with PATH, which has been mentioned a few times, thanks. A few thoughts and then a broader question. One, I think in line with Dr. Nulashunga's comment about the differing ideologies, I think it is also the differing timelines of private sector, political timelines, and research timelines are also a real challenge to balance.

I also wanted to just make a second comment that in the health care infrastructure, I hope we're also thinking about the research with an eye towards product development infrastructure as well. So, that includes manufacturing but not just basic research within countries but also translating that basic research into products that are addressing the priority health needs for that country.

My actual question is, you know, Amanda mentioned Theo Cruz. I think of another great example in South Africa, the SHIP program, the partnership between the department of science and technology and the MRC is also a great example of really trying to provide a platform for public/private partnership and academia as well which I think is an important role. So, I'm just wondering, Amanda, if you might be able to talk a little more about, what were the elements that work in those examples? What needed to happen to actually get something like that off the ground? Sorry to put you on the spot.

MS. GLASSMAN: I think that's a great question. Sitting in front of you is an actual Brazilian person who might be able to mention. I'm not an expert in this area, but I think it's actually a perfect role for development banks or for governments themselves that want to invest in science and

technology policy. And I think partially they were driven by political moments. Those countries were, in a way, cut off from the rest of the global economy for a period of time. Partially is that they had a lot of PhD's that went back to their country and started up work there with a social commitment. Part of it is the willingness of public policy makers to invest. So, I do think that there is probably a role for the banks from an external position. I don't know how well they've actually done at investing in these kinds of science and technology programs. My perception is that it is a little bit patchy. And they haven't necessarily connected it as a way to crowd in private sector investment as you say, but that could be interesting.

MR. VILLASENOR: Thank you very much. I think we had a question here.

MS. JESSICA: Hi, my name is Jessica. I'm an intern at the Congress of Neurological Surgeons. So, if we have those R&D companies invest in these third world countries, do you think that they're going to be able to keep up with innovative payment models that are reflecting the science that is developing these drugs?

MS. GLASSMAN: So, a couple of things. To run a clinical trial in a low- and middle-income country is, many times, less expensive and potentially less complicated from a procedural standpoint then if you have to run something in the U.S. There's been a little bit of work comparing the cost and benefits so that's why, I think a lot of companies are interesting in doing clinical trial research in low- and middle-income countries. Obviously, with all of the safeguards that are necessary for working in those kinds of settings.

The payment model, if I'm thinking about whether South Africa is going to reimburse the latest cutting edge drugs that could be potentially be trialed in South Africa, that's difficult because they have a budget constraint that is so very different from a market like the United States or a market like Japan. These are the difficulties.

One of the other things that we see is that once medication, a new device is available in a country, maybe trialed it in that country, the pressure to reimburse is there already because some people have it and some people would like to have it. It might be reimbursed by the private sector, private insurers and then the public sector wants it too. Which could be good in the near term because I feel like the public sector has to increase spending. No matter what your perspective, I think we all agree that public spending on health is extremely low and needs to increase in most middle-income countries

especially. So, maybe that's a healthy pressure but it also can mean tradeoffs in the near term with cost-effective interventions.

MR. VILLASENOR: Any further questions from anyone?

MR. MISTRE: Hi, my name is Amit Mishra, I work at the National Institute of Health. I was just curious if you could talk a bit about the differences in incentivizing multi-national corporations versus working with local private sector or maybe strengthening local private sector in some cases.

MS. PACE: I don't know if I have a good answer for that but it was a question that I had as well, that we talked about a little bit even in the green room beforehand, how broad really is private sector in this context and are we really looking at the social impact. The social entrepreneurs or the impact investors or who really needs to be incentivized. I think our conclusion was, you need different incentives for those different actors obviously.

I think for multi-nationals, they're going to be generally concerned with some of the regulatory issues and kind of those high level policy, I'll call them barriers, that they find when they go into country. I think in terms of other groups that are looking at product development, for example, I would argue that they are more concerned with that local level engagement that we were talking about. There is much more of an interest of some of those players in getting to the end user and accessing those stakeholders which can also be somewhat challenging in those settings. So, that's how I view it and that's probably obvious but you have these big players really being concerned at the high level, maybe more global issues, and then you have some of the other actors really looking at this problem from the ground up. There's just issues on either side that need to be addressed.

MR. VILLASENOR: I guess I'd add to that from the multi-national perspective, I think there's some interesting leverages because you are a multi-national and you're looking at multiple markets. So, for example, suppose country X institutes some incentive that viewed alone in that context is not sufficient to actually create enough incentive to actually do something. If country X does that and country Y does a related incentive and the multi-national is able to get the combined benefit in some way of these incentives they are in a much better position than an entity that is only working in one country to leverage those kinds of correlations across incentives and different jurisdictions.

So, I think then you can ask the question, so there is clearly a potential benefit. Then the

question, should you just wait for it to happen by luck and hope it happens and hope people are efficient in identifying it or does it make sense for some countries -- If a country is saying, I could do this incentive or that incentive and all else be equal. They say, well if I do this incentive, that's going to actually align with the incentive that this other country is doing. So, in other words, these countries can make decisions in a non-independent manner. Obviously, still keeping, first and foremost, the primacy of their own goals of health in their countries. But when you have these all else be equal type situations, that can factor in as well. So, multi-nationals have that advantage.

On the flip side, they obviously are less likely to have the deep knowledge specific to a particular jurisdiction that a more local player would have. That could potentially give you a disadvantage in terms of fully capitalizing on an incentive structure that might be in place. So, advantages on both sides but it is a terrific question.

MS. PACE: The regional approach, though, is an important one and I'm glad you raised it. We've seen that working with pooling and procurement so keeping in mind and it's too bad the ambassador had to leave but there are other country representatives here that could speak to the benefits of that as well.

MR. VILLASENOR: A question back here.

MS. BETYAL: Hi, I'm Betyal, I haven't quite figured out how to phrase my question so bear with me. When we referred to institutional capacity of each of these governments to either regular or manage these investments and also serves an incentive for the companies and also other public sector or bilateral investments in these countries. The nitty gritty of capacity is whether government has HR manuals, whether they can have the spokes of capacity of, do they have documentation, registration. And a lot of the investment in building the capacity of these governments have been from public sector -- either multilateral or bilateral. How much, in your opinion, should or will private sector invest in that nitty gritty of building the capacity of these governments to create the environment that speak about that is so important leading to this.

MS. GLASSMAN: I don't think they will at all. I think that is the responsibility of the public sector. There are some issues with the doing business index. I think maybe you should do a doing business in health index instead because it is down to that. How easy is it to even -- You asked about

domestic, private sector in R&D, that's a pretty small group of organizations and people and I would guess that many of them are not-for-profits, semi-autonomous with a lot of public funding. So, that's something that I think we need to explore further. I guess it's the job of each government but also, you can imagine that the World Bank or the IFC or other kinds of organizations would try and build that business climate that would make sense for government.

MS. PACE: I do think that we've seen companies come into countries, though, and focus on technical assistance when it comes to some of the recommendations that you guys have made. So, I agree they're not going to be writing those HR manuals necessarily and maybe it is because I've worked in the NCD context, but I've seen that happen. I've seen companies come in and say, OK you know what, there's no market for us here yet but when can we do to create the space for one? And recognizing that, they've worked with professional societies and other players in the space to try and get at some of those capacity-building issues. I wouldn't want to leave with the impression that that's not happening at all but agree, I think it is a joint approach.

MS. GLASSMAN: This issue is that companies have a conflict of interest because they're trying to grow the market and sell a product at the same time. Which is totally fine and there are all kinds of access schemes that are really, really interesting but I think as a government, you have to also structure that in a way that is going to make sense for you.

The other thing is, the people trying to do business, their experiences are what matters. So, the doing business index does a survey of firms to ask them, how long did it take you to do this, what happened, what was your experience and that is the kind of thing that, I think, could really add value. What are the bureaucratic problems that firms are facing, whether they're domestic or international in terms of trying to set something up and move ahead.

MR. VILLASENOR: Thank you very much. A question in the back.

MR. CHEN: Hi, happy Global Health Day. I'm a student from Johns Hopkins SAIS just across the street. My name is Zu Chen. So, not long ago, Senator Cruz and Lee introduced a bill trying to bring in international reciprocal agreements for drug approval, trying to use that to bring down drug prices in the U.S. market. My question is, to what extent do you think that will help spur the private investment in R&D and how feasible will that be for developing countries. Thank you.

MS. GLASSMAN: I don't want to answer that question. (Laughter) Let me give you another example. So, there is a project to harmonize regulatory processes in the southern part of Africa, basically led by South Africa and some others. It was around the idea that not every regulatory agency has to review every drug, especially generics. So, one agency can do the job and all the rest of those countries can also grant market access for those drugs. I think that is actually a very sensible way to go. I think the U.S. situation is quite special. It's hard to extrapolate from that to elsewhere but that is a good time to turn it over to you to answer the hardest part of the question.

MS. PACE: Yeah, I think you've kind of got at the motivation of that legislation which is really more about the U.S. market and patient population more than it is about people in low- and middle-income countries, I would argue we have mechanisms to try to drive down those prices. You look at the GAVI model as an example and some of the others that we've mentioned already.

It is a bit difficult, I think, for both of us to connect that particular example to what we're talking about today just because I think they're more concerned with this argument that people in other countries, including in western Europe, are paying less than U.S. citizens. So, how can we ensure that we receive the same discounts. That's, I think, a different or maybe even outside the scope of this discussion of how we can ensure there is adequate investment but also access, affordability, availability in other countries to vaccines, diagnostics, and therapeutics.

MS. GLASSMAN: Yeah, other countries generally don't have the requirement to buy nationally, some do. Especially countries that have industrial policy like Indonesia, for example, they have domestic manufacturers so there's that, China as well.

MS. PACE: Yeah, and you have, you know – well nevermind, I won't get into universal health coverage.

MR. VILLASENOR: OK any final questions? OK, I want to thank all of those in the room and all of those online for taking the time. And thanks absolutely, to our terrific panel.

* * * * *

CERTIFICATE OF NOTARY PUBLIC

I, Carleton J. Anderson, III do hereby certify that the forgoing electronic file when originally transmitted was reduced to text at my direction; that said transcript is a true record of the proceedings therein referenced; that I am neither counsel for, related to, nor employed by any of the parties to the action in which these proceedings were taken; and, furthermore, that I am neither a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

Carleton J. Anderson, III

(Signature and Seal on File)

Notary Public in and for the Commonwealth of Virginia

Commission No. 351998

Expires: November 30, 2020