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Seminar:

Harnessing private capital for global public goods: Issues, challenges and solutions

Centre for Social and Economic Progress (CSEP)

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Speaker(s):

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Gulzar Natarajan

Secretary, Finance Department, Government of Andhra Pradesh

Overview:

Montek Singh Ahluwalia

Former Deputy Chairman, Planning Commission and Distinguished Fellow, CSEP

Discussants:

Janak Raj

Senior Fellow, CSEP

Renu Kohli

Senior Fellow, CSEP

Know more details: https://csep.org/event/harnessing-private-capital-for-global-public-goods-issues-challenges-and-solutions/

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The following is an edited and revised transcript from the event. It has been generated by human transcribers and may contain errors. Please check the corresponding video for the original version.

Vrinda Gupta:

Hello everyone. I am Vrinda Gupta. I am working as a research associate at CSEP and I am also completing my PhD from IIT Delhi. I would like to welcome you all today for a very recent CSEP publication which is 'Harnessing private capital for global public goods – Issues, challenges and solutions'. So, this paper puts forth the case that three important policy objectives of poverty alleviation, growth and climate transition requiring public and private funding should be perceived in parallel. We have a very esteemed discussion panel. I would like to welcome our speaker Dr V Ananta Nageswaran. He is the chief economic advisor of the government of India. He has authored four books which are at the intersection of finance and economics. He was previously dean of the IFMR graduate school of Business. And he is a distinguished visiting professor at the Krea university. I would also like to welcome Mr. Gulzar Natrajan. He is member of Indian administrative service. Since December 2020 he's been serving as secretary of finance department and of commercial taxes department in government of Andhra Pradesh. He has co-authored three books, two of which are with his co-author for today. I would also like to welcome our expert Montek Singh Ahluwalia. He is a distinguished fellow at CSEP, he has served as deputy chairman of planning commission of India, finance secretary of ministry of finance and as first director of independent evaluation office of IMF. He has written extensively on development economics. And his recent work centers around climate transition. Next, I would like to welcome our discussant Dr Janak Raj. He is a senior fellow at CSEP and leads macroeconomic segment in growth finance and development vertical. He has served as executive director at RBI and member of its monetary policy committee. He was also associated with IMF and ministry of finance. I would also like to welcome our next discussant Dr Renu Kohli. She is a senior fellow at CSEP. Previously she was with RBI, IMF and think tanks like ICRIER and institute of Economic Growth. Her work focuses on macroeconomic policies and issues. Last but not least I would like to hand over to our moderator for today, Dr Rakesh Mohan. He is president emeritus and a distinguished fellow at CSEP. Previously he was a senior fellow at Jackson Institute for global affairs and professor at Yale University. He has served as deputy governor of Reserve Bank of India and secretary, economic affairs. He has written extensively on Indian economic reforms and macroeconomic policies. Thank you.

Rakesh Mohan:

Thank you very much, Vrinda. Anant let me welcome you once again. It's really a great delight for us that you have now almost finished with the G20 work. But not fully. There is still 2 days to go. So, but I am glad that despite the fact that two days to go you are here with us. And one on issue which of course, G20 has been addressing very intensively. Similarly welcome Gulzar. First time I met you, but I know of your fame through your book with Somanathan authored on state capacity which is I think one of the key issues that is confronting the country today. So, we are actually delighted that you are here with us. And of course, these are homegrown people. And both have been greatly wisened up having worked in the reserve bank. He is a little wiser because he worked there much longer. And Renu of course, has worked in reserve bank, ICRIER, and various other places and the IMF. So, thank you so much for doing this. I won't say much more except to say since you are presenting your work. So, I don't want to present your work. But basically, I think you have raised a very important issue here that, there are all kinds of estimates that are floating out there. Both in official as well as non-official. The question really is how will those funds actually be raised, what is the extent and what are the issues concerning how you will raise those funds. And as the paper's title says particularly in terms of harnessing private capital. All yours.

V Ananta Nageswaran:

Good afternoon, everybody. Thank you, Dr Rakesh Mohan, for those kind words of introduction. I am also happy to have Dr Renu Kohli and Mr. Janak Raj as discussants. So, we both embarked on this paper because not only during the G20 presidency but even before… because of the inability or the unwillingness of developed countries to provide or carry out the pledge that they made, that they would provide up to 100 billion dollars of funding to developing countries, there has been a tendency to say that private capital is available in plenty. So, people look at the numbers in terms of assets under management in the private sector and say that those numbers vastly exceed the sums required for energy transition and therefore private capital is the answer to the provision of global public goods. And we felt that this is somewhat glib and superficial. Because private capital hasn't had a long history of creating public goods. So, we also felt if they were to do so, there are some important pre-conditions that need to be met. Also, behavioral attitudes and changes are required in the private capital space or in the fund management industry for this to become a viable reality both for the countries that will be receiving that private capital and also to ensure adequate incentives for the private capital to come through. With that, I will just go through my slide presentation. And these are the various discussion points. First of all, we will talk about this energy transition itself to set the stage and the context. Then we will talk about the role of domestic, foreign and private capital in financing climate change, both in terms of adaptation and mitigation requirements. How to de-risk those mitigation projects in terms of private sector participation and what changes to the international financial system might be needed in order to make it work. First if you look at the slide it is very clear that there has really been no major pullback globally in terms of fossil fuel consumption. So, whether it is in terms of fuel type or in terms of overall consumption, it has been rising and there is a reason for it. Its not that easy to switch out of most affordable, easily accessible and reliable sources of energy. After all renewable energy still faces both technological and cost challenges, both in terms of storage issues and in terms of grid stability issues. And even when it comes to recycling wind turbines, used wind turbines, there are problems. So, I have mentioned this several times in the past, the issue of or the story or the case study of Jeju island in South Korea is an instructive one. It is supposed to have been an ideal laboratory for net zero. Given its location, wind flows and the small size. And there was an article in Bloomberg last year in March 2022, that has spelled out how challenging and difficult it has been for Jeju island to achieve net zero. Even within a very ideal laboratory setting for achieving net zero. And therefore, this is something that we have to accept is probably not the most undesirable thing because developing countries do need affordable and reliable energy for economic growth. Which in turn is necessary for energy transition actually. You look at the coal plants. This is from July 2023 data and look at the coal plants. Majority of them are still under 20 years of age. So, phasing them out is going to involve writing off billions of dollars of investments. Not to mention the labor displacement and adjustment cost. When we look at the investment cost required for net zero, some of these important relocation and labor disruption costs etc. and the social and economic dislocation it causes to those communities, some of you who might have read the papers written by Tony Short and Pearce in the US federal reserve system, on how outsourcing of manufacturing led to hollowing out of communities in the United States played a very big role in the presidential elections in 2016 etc. I think we'll have to understand the dislocation that this will cause. So, it's not going to be an easy one to provide for. And the same thing applies to India as well. In fact, where the plans of recent vintage or even more coal plants than in the case of the global average where 10 to 19 year old plants were slightly more in terms of installed capacity. So, this is for coal. And then what is happening is, because of this excessive faith which at the moment appears disproportionately excessive given the technological barriers we have for widespread deployment of renewable energy, there has been naturally a pullback on investment in fossil fuels including oil exploration etc. and which has not been the most optimal way of approaching this. Because it has had consequences for economic growth and it will have consequences for economic growth. And when it comes to renewable energy, I haven't even touched upon the issue of the availability of critical minerals and rare earths. And again, for those of you who have not yet caught hold of the book, 'The Material World' by Ed Conway, I would strongly recommend that book. Just to give one important data point, the amount of copper that we would need actually to achieve net zero by 2050, would exceed the amount of copper we have used since the metal was discovered. And the amount of energy we would need to get all those important minerals out of the ground to be able to provide for renewable energy is itself going to be humongous. So, the book basically lays out the enormity of the task that needs to be appreciated. Nobody is saying it is not an imperative but it's just important to understand and be realistic about what we are trying to do and in what time frame and what will be the tradeoffs it implies. So, this has obviously caused huge volatility in crude oil prices. So, even now I think while currently the price levels of Brent crude or WTI are not prohibitively expensive for a country like India, but there are several other countries whose domestic currencies have depreciated to the order of magnitude of two or three times in the last two years. And for them even this price of about 85$ per barrel is quite prohibitive when translated into domestic currency terms. And therefore, the lack of investment and the price volatility will create demand supply gap for quite some time. And therefore, one should if you are taking a longer-term bet on fossil fuel prices rather than becoming a case of excess supply, there will be a case of excess demand over supply in the coming years. Which will actually keep their prices elevated and continue to post an economic burden, depriving countries of growth and resources, domestic resource generation. And therefore, excessive reliance on external capital will also have implications for current account balances which is what the national income identity is. And then that will in turn further feed back into currency volatility and higher cost of capital. So, it's going to be a vicious circle. So, to some extent if you are going to look at energy transition paradoxically you have to provide for fossil fuels in the near term. This is the shortfall even with respect to renewable energy in terms of the solar and wind power shortfall and it is not easily bridged without massive investments and also without massive development of technology in the first place to ensure that they are viable alternatives for countries. This is worldwide. Now, this is the point that we have been making. The country is already grappling with the twin challenges of poverty alleviation and economic growth. And on top of them climate change and energy transition are additional burdens, especially in the post covid context where we talk about stalled recovery and high debt burdens etc. and when cost of capital in hard currencies has gone up by 400 to 500 basis points in the course of 12 to 20 months in the last two years. And therefore, energy transition must bear three costs. Financial cost of phasing down sunk investments, rise in cost of production from rising fuel cost and higher cost of new energy sources as they replace legacy sources. Now this quote by Daniel Yergin in December 22 actually bears repetition. What seems a singular emphasis on reducing emissions needs to be balanced against other urgent priorities, health poverty and economic growth. In fact, Vitor Gaspar in the fiscal affairs department of the IMF and ex Portuguese finance minister, who is a very ardent champion of energy transition and climate change… in tackling climate change acknowledged that the SDG goals came ahead of the Paris agreement on climate change. Even chronologically he considered that SDG goals were enunciated before the Paris agreement on climate change. Therefore, in July in Gandhi Nagar at the second FMCBG meeting he did concede the primacy of SDG, sustainable development goals, ahead of energy transition goals. And if you look at the investment requirements, both before 2030 and post-2030, these numbers are quite substantial. I mean it is humongous. I don't think people grapple to understand the order of magnitude that these numbers mean and what they imply for the cost of capital etc. After this slide, my co-author and colleague Gulzar will take over. If you have been reading, Jean Pisani-Ferry, of the Bruegel institute, has been writing for the Peterson institute and elsewhere, as to how Europe itself will have to recognize the tradeoffs involved. Because Europe has been sort of a big votary of placing energy transition and climate change at the top of the agenda. For example, their proposals on carbon bi adjustment taxes and also the recent rules on European union deforestation rules, all of which give the impression that environmental and climate considerations dominate economic compulsions. But he was the one who wrote very clearly that at some stage Europe has to reckon with economic competitiveness and fiscal cost of the net zero transition which led us to formulate this impossible trinity of net zero. So, I think at any given point in time, one can have only two of these three. If you want to maintain fiscal stability and fiscal sustainability and yet achieve net zero as well, I think one has to forget about economic competitiveness. But if you want to maintain net zero and economic competitiveness, then a lot of fiscal incentives have to be applied so that net zero costs are kept down, energy transition and renewable energy sources are made affordable, so that economic competitiveness doesn't get impaired. But then fiscal stability has to go out of the window. That in turn will naturally have macro stability implication, that's a different story. But of course, if you want to maintain fiscal sustainability and economic competitiveness as well, then net zero by 2050 is impossible to attain. So, therefore I think the key message in the preamble to this presentation before we come to the challenge of harnessing private capital is to set the stage with respect to the enormity of task that we have embarked on and how it involves tradeoffs rather than sort of a singular pursuit of energy transition alone as the preeminent goal when it comes to public policy. Because this is a matter of economic tradeoffs and not evangelical or theological pursuit. So, with that I am going to hand over to my colleague Gulzar.

Rakesh Mohan:

Thank you very much. Anant. You have sort of done a reality check on a lot of things that are being said and it's a very sobering reality check in the sense that to the extent that if I can put it in extreme terms, if the world is doomed without net zero with 2050, 60, 70, whatever, then you are saying look you really have to think hard. Because if the world is doomed, we won't be around. We'll only die in 50 degree temperature. But I think it's a very, very important reality check in terms of being realistic about what are the issues, what are the numbers really mean. So, I am delighted that you have done this. And Gulzar will continue.

V Ananta Nageswaran:

Before Gulzar takes over, in the light of the comment you made about being doomed etc. and in the spirit of the free willing discussion we have and also to wake up people in the afternoon, I could say that the way the current discourse on climate change is like this. If global warming doesn't kill us, we will ensure that net zero transition will do so. That seems to be the way the current policy framework or the pursuit is. So…

Gulzar Natarajan:

Good evening. And thank you very much for having me. Just a small digression. In a sense, this is perhaps an opportunity for some triggering of a debate on different way of economic growth itself. Who says that we should have SUVs and we should have growth as the… why should for example the United States wants to grow at 4%? I mean, Japan has been doing pretty well. So, I am just saying that. Because that, the conversation will have to eventually move into those areas for some form of reconciliation of these apparently impossible challenges. Anant had talked about reality check on the challenges that we face. I'll stress more on the financing side. Again, that is also a reality check in some ways. So, simple metrics which tries to look at the constraints that are faced in unlocking capital in each of these four quadrants. Domestic and foreign capital and public finance and private finance. We all know about these constraints but its worth sort of spending a bit of time looking at, removing the layers in each of these things and trying to see how much of it is actually likely to materialize given these constraints. I am not going to go into this because subsequent slides will have those numbers. But if you look at public finance and domestic capital again, it's all competing against the SDGs and all the other challenges which Daniel Yergin alluded to. Public finance and foreign capital we are talking about the multilateral development banks and those sorts of assistance. We know the envelope is very limited. Very tiny when compared to the demands. And we talk about private finance and domestic capital. Again, as we shall see, again the envelope is limited. The amount of patient, risk tolerant, capital available to invest in climate mitigation project… we are not even talking about climate adaptation, which perhaps would have to come from mostly public finance. The first two quadrants. And private finance and foreign capital creates its set of problems. So, in some ways this whole buzz phrase, billions translating into or billions being able to unlock the trillions. How realistic is this? We have tried to sort of distil what it means in terms of what would happen. So, they have to be de-risked enough to become attractive for private capital. There is sufficient patient private capital available to invest in long term, risky long term assets in developing countries. Billions of concessional capitals can be leveraged 10 to 20 times. The reality is that as we have written in the paper, unlocking even a dollar of private, dollar of public finances proving a challenge. Demand side of the market can absorb the cost of these investments. Private sector and the state, the supply side have the capabilities to deliver on this agenda. And the distortions and imbalances from inflows of foreign private capital can be managed. Now these are all like challenges which needs to be surmounted for us to be able to make meaningful enough engagement with the problem. And of course, following that some numbers which we have mentioned in the paper. Again, MDBs mobilize less than a dollar from private sector for every dollar of MDB finance mobilization. Sorry for the typo there. Private investors… this is an important point…private investors demand a very high return. Especially when you are talking about foreign capital and are there projects available in climate mitigation which can meet those? Very high returns expectations that private investors demand. So, this is going into the private return expectations. Avinash Prasad has this very nice paper recently, where he tried to sort of look at returns expectations and the forex hedging costs incurred by investors in developing countries or developing countries governments. If you come down, you look at those numbers. 15, 20, 18, 20, these are like, does any infrastructure project will ever be able to generate these kinds of returns. So, just to sort of provocatively think about it. If private capital flows are to be de-risked by public sector and multilateral institutions, then returns expectations too should be correspondingly lower. It is only appropriate that this be asked. Of course, money goes where returns are. Because they have enough other competing alternatives. To just put this in perspective, there's like what, 40 trillion dollars of capital floating around, of which the stock of investments which have been invested in developing countries in infrastructure including natural resources, everything is few hundred billion. So, its just a really tiny portion of the universe of competing opportunities available. Again, from the Prasad paper, this is the macro risk in terms of what investor demands for investing in developing countries. We are talking about foreign capital here. To the extent that a trillion dollar, this Songwe-Stern report talks about 2 or 2.5 trillion dollars of incremental investments required in climate mitigation projects of which a trillion will have to come from foreign capital. And when we look at the trillion from foreign capital, with these risks this is just a country premium, risk premium that is demanded by… if you look at India it's like 6% points higher. (Inaudible comment).

V Ananta Nageswaran:

Also, the foreign exchange risk premium, given the kind of premium implied in the forward exchange rates, it is much more than the actual amount of depreciation that takes place. So, in other words, there is money left on the table which is basically doesn't go either to investors or to the host countries. And if at all it does, it actually goes to the investors and the financial sector intermediaries. Because the host countries end up bearing the cost of the foreign exchange risk which eventually turns out to be lower than what is implied in the forward currency risk premiums. That is what this chart is showing, the tables are showing. And you have the table for India in the past 10 year bonds spread and the average annual excess risk premium. So, in other words the risk of taking the foreign currency exposure is disproportionately borne by the fund receiving countries and it is not equitably shared between the investor and the borrowing or in equity recipient countries. And if at all, there is excess returns here, it also goes to the financial intermediaries. So, there is some reforms to be done here in terms of the way the foreign exchange risk is priced by financial sector intermediaries especially when it comes to emerging markets where the bid ask spread especially for longer term projects. 10 years forward currency hedges, they are not easily available off the shelf from the market. They are structured and the more the structuring is involved the greater the bid ask spread in these contracts which basically is money left on the table or the money taken from the recipient countries. To which obviously adds to the overall cost of capital.

Gulzar Natarajan:

Having now looked at the challenges associated with attracting foreign capital, private capital, lets also look at what has been the experience of other countries in the west with respect to private investments in infrastructure. Again, here, Canada, Australia, UK, have been pioneers in this. United States has been also. But these few countries have been extremely active in engaging with private investment in infrastructure. Their experience, in UK for example, I think in 2019 Jeremy Hunt, the chancellor of the exchequer, he sorts of in his budget speech had an obituary for the private finance initiative. He said… and this was a conservative government by the way… he said, PFI failed and I am bringing down the curtain on private finance initiative in infrastructure in UK. Its like the full circle from Margaret Thatcher in 1981 or 82 or late 80s to now. So, now if you look at the experience of private equity and infrastructure funds in UK and the US, all these practices have been pervasive. Asset stripping, high prices, investment skimping. Basically, with infrastructure funds you also realize that, the investor and the owner is detached completely from the asset itself. Because you have this parceled out blocks of limited partners, with a general partner and each one of them keeps moving out and all that happens is the maximizing the returns during the time the investor is invested into this asset. So, the UK's national audit office did this great study of 20 years of PFI, came out in 2018. It found that PFI assets are 40 to 60% more expensive than public sector alternatives. As we shall see in the next slide, there is a case study of water sector which financial times has been extensively covering for the last four or five years. There is this series of studies which have been published by various, very reputed institutions, in the UK about the Macquarie investments in the water sector in UK. In the ten years to 2016 when Macquarie entered Thames's water, it paid out 1.6 billion pounds in dividends. Assumed 10.6 billion in debt and ran up 260 million pension deficits and paid no corporate tax in UK. And it generated 15.9 to 19% returns for itself from a most boring, low return, low risk asset, called water. Water distribution. Now, obviously you can't do that unless you are figuring out ways in which you can sort of extract that much use out of that asset. And there are two ways. One is obviously to get it out of the customers. Part of which would have happened. But regulators are there. The other thing is obviously to strip the asset and keep the parcel, pass the parcel alone. Water sector in UK is a really solid case study. In fact, there are 11 utilities of which 10 have been privatized. The one which has remained with the public sector, the Scottish utility, that is the only utility which makes profit, has the least debt, has the best quality standards, a bunch of parameters. The university of Greenwich did a study which again was widely quoted, the British government constituted a study that too findings came to the same conclusions. So, a bunch of these similarly shocking numbers.

V Ananta Nageswaran:

The final therefore to come to the last couple of slides on our presentation. Public investment is an important component of any public good creation. The importance of public investment must be acknowledged and recognized. This is also consistent in the sense of ownership at the country level. I mean, many of these projects unless they have public acceptance and ownership by the governments and the people of the host countries, there is not much chance of them achieving their stated aims and objectives in terms of energy transition. So, that is why I think there has to be a proper balance between public and private capital roles in this. Then, post-World War II we have seen many transformational projects have been done at the initiative and initial innovations happened in the public sector in academic institutions, in government-academic collaborations etc. And private sector has simply come in after somebody else has taken the risk with public money. I think, the same thing will happen here. So, the risk taking will happen from the public sector and the return generation will happen for the private sector. We need to find the right balance going by the past experience especially even in advanced countries like the UK where the much of the returns were generated by adding debt on to the entity's concern which benefitted the investors at the expense of the entities and their maintenance of assets, etc. And eventually if really are focused on energy transition which we acknowledge, global warming is an existential reality threat. But it's important to focus on public investment because then it'll also obviate problems with intellectual property rights and help assert the global public nature of solutions. Even in terms of negotiations between sovereigns in sharing some of these resources including technology, know-how, etc. its going to be very complicated. If private interest is involved, it may almost become impossible for it to be shared across the world. So, in that sense that also makes another case for greater role for public investment than for private capital. Also, other risk that comes with this emphasis on private capital is that, it may also prompt the financial services industry about which we both wrote in 2019 on the rise of finance, to push through capital market liberalization because it will be seen as necessary to attract the private capital. And that in turn can lead to premature financialization of economies, which usually has to proceed in tandem with economic growth. Wherever as in southeast Asia which we saw in the 90s, when financial liberalization precedes economic evolution, it usually results in debt crisis in several countries as we have seen in Latin America and even in east Asia as well. So, in terms of the areas of reform… please go ahead Gulzar.

Gulzar Natarajan:

This is our last slide. This is a lot of stuff in one slide. Each one worth spending a lot of time. How do we de-risk private capital into climate mitigation projects? And what are the sort of institutional reforms that will have to be undertaken on the financial architecture, global financial system. On the first part, it goes without saying, given as Anant had also mentioned, given the central role played by public finance in previous large transformational endeavors, its only appropriate that governments take the lead and then that requires a well endowed development finance institutions, institutions with due diligence capabilities and good governance systems. Easier said than done. With high risk tolerance and patient capital, willingness to assume losses, because these are all going to be areas where by nature if you have made money by de-risking projects as a public finance institution, there is something wrong somewhere. And then that creates it a moral hazard unless you have this good governance systems in place. Couple of sorts of broad principles to use public finance for greenfield projects. A) the cost of capital is lower for public finance, B) public finance, many of these greenfield projects assume have great massive construction risks which no private investor will be able to bear, right of way, sight acquisition, all these things which are best borne by if at all by governments. Attract private finance by monetization of revenue generating brownfield projects. Again, there are like sectoral nuances here. This is again a broad principle but needs to be… it has its limitations in terms of how much you can unlock by way of this monetization. Make contract renegotiations transparent and predictable. Prioritize bank financing. Whatever we say about capital markets and all other alternative forms of funding, infrastructure funds, foreign capital, the fact remains, banks will remain the major source infrastructure finance for a long time. It still remains a major source of infrastructure finance in Europe. Except in US and China, no other country has been able to crack this challenge of the capital markets, the bond markets being able to becoming a major source of infrastructure finance. Its actually really marginal source in most of Europe. Banks remain the major source. So, to that extent… ok, while we do have to focus on deepening, broadening, enabling the capital markets, our primary focus will have to be remaining on how do we make the asset liability mismatches and all those challenges which is associated with bank finance, to unlock more bank finance into this, things like subordinate loans, guarantees, risk insurance, take out financing, work on the bond market, broadening and deepening. Of course, when we are looking at international and foreign finance for infrastructure especially relevant for a large part of the developing world, Africa and low income countries, we need to multiply and it's not like 10%, 20%. Multiply several folds, what is the envelope of MDB funding that's currently available. And lowering the cost of capital, one of the things is we touched upon Avinash Prasad's point about the money on the table which is taken by private investors from developing countries. He makes the case for a partial foreign exchange guarantee instrument to be provided by MDBs for a basket of projects with an appropriate governance system to select and support. There are other blended finance instruments which we have to think of. And of course, reforming the rating agencies and their rating mechanisms. You want to talk about the last point?

V Ananta Nageswaran:

This is a separate seminar in and of itself. Because we have looked at some of the qualitative parameters that the rating agencies are using. In fact, my colleague and consultant friend Akash Pujari is here. He is working on it. It's a work in progress. What we find is that the qualitative parameters that the credit rating agencies use are quite significant. And the weights that they carry are far more significant, sometimes even more than the quantitative parameters. So, I think I don't want to spoil the suspense because you will hear about it from us in about three or four weeks' time. Its not a story that is centered on India, by the way. It is a story centered on the role, on the non-transparency and opaqueness that some of the qualitative parameters play which affect all developing countries by the way. Much more than they affect developed economies in their credit rating. I think that is clearly something that needs to… if there is one area where since the western economy swear by competition on paper, this is one area which is crying out for more competition, the credit rating agencies. And then the interstate investors state dispute resolution mechanism is something that… even fortunately lately the United States is talking about the iniquitous nature of this investor state dispute mechanisms which are overweighted in favor of investors compared to states and for very trivial reasons they can take the state to court and extract extraordinary penalties, which has hampered several bilateral investment treaties. And off late the United States congress is coming around to the view that this is a huge burden that is being placed on states at favoring investors. To conclude we both are by nature instinctive contrarians. If the world was not overweighted in favor of the private capital, probably we wouldn't have felt the need to write this paper. We wrote this paper as a balancing mechanism set to provide an alternative perspective on that it is not going to be easy mobilizing private capital. Even if you do so, it has to done with clarity on what to expect, walk in with eyes open and make sure that if public capital does go in first and prepare the ground for private capital, then accordingly de-risked investments must also be willing to accept lower returns. You cannot have lower risk and higher returns which is what mostly the private sector has been looking for and achieving through various means in terms of loading the countries and the companies they invest in with debt etc. and if it can happen to developed nations, it can happen to developing countries with limited state capacity or even in the private sector institutional capacity etc. And above all, attracting private capital and that too from overseas will have macroeconomic implications. So, I think we need to be aware of the importance of public capital, whether it is international or domestic, in which case economic growth is an imperative. In which case affordable and reliable fuel supply is an imperative. In which case we need to be a lot more realistic about this transition itself. That is the message of this paper. Thank you very much.

Rakesh Mohan:

Thank you very much, Anant and Gulzar for this, if I may put it this way, very provocative paper. In the sense that it is going against a lot of the current received wisdom globally. And in the G20 itself which you have been participating in actively. I wonder if you gave this presentation to the G20 itself. Let me see who won the sweep stake. Janak, you won the sweep stake. So, you go first. 6 minutes 40 seconds.

Janak Raj:

Thank you for this wonderful presentation. I enjoyed reading the paper and of course, the presentation was also excellent. The key focus of this paper is to how to mobilize private capital for basically financing the climate change. That is adaptation and mitigation. The paper examines challenge across three dimensions. Public-private, domestic and international and equity and debt. And it requires action both at domestic level and global levels. Now given the huge challenges of climate finance, there is absolutely no doubt that we need private capital. But the issue is that… and private capital is of course, available in the market. Number which you have presented of course, I have also seen in the Prasad's paper, something like 206 trillion. Which is huge of course. I have also come across numbers which is much higher than this. Of course, one doesn't know which is the correct number. But the fact remains that there is huge private capital which is available in the market. But the challenge is how do we mobilize that private capital. So, it is in this context that the paper makes a good contribution to the literature by focusing on the challenges which need to be addressed for mobilizing private capital. So, I broadly agree with many of the observations and many of the points which have been made in the paper. But I also have my comments. My comments are in two areas. One, what is already there in the paper, I have some comments on those points. And my second set of comments are related those areas which I believe the paper should have, paper ought to have covered, but I don't find much mention. Anyway, let me come to my first point. When I heard you, I was happy to see you mention the role of public sector in mobilizing private capital. But when I read the paper, I think it has not been as forcefully made out a case in the paper as you have made it here. So, there is absolutely no doubt that we need to mobilize private capital. But I am very sure that its not possible to mobilize the scale of capital which we want without the support of the public sector. The more the public sector support we have, the better it is to mobilize private capital. I also find that the paper has not made many suggestions as to how to improve public finances. If you are to improve public finances we need to focus on some key areas. Of course, one can debate a lot of areas. But I just want to mention two areas. Number one, there are still lots of fossil fuel subsidies. The latest estimate which came from the IMF suggest that all countries spend something like 7 trillion on fuel subsidies. I think the time has come to eliminate these subsidies and free up the resources which can then be used to attract private capital. And number two, tax to GDP ratio. It has not shown improvement for many years, even in India we find the last 10 years, it has remained almost stagnant and it am sure it is the same with many other economies. I think this is one area we need to focus on. Let me come to the second point. You have mentioned that the national government should support national development finance institution with concessional capital to facilitate project pipeline development. I am not really sure what exactly you have in mind. According to me the best way the government can support public sector DFIs is by contributing capital as much as they can, given of course, their budgetary constraints and then don't insist on surfing the capital, like they should not ask for dividend payments just as the government in India is asking some of the public sector enterprises. So, I think that would be the major contribution if it can come from the public sector. And the role of the financial markets. Again, I was happy to see when you talk about the bond market and the equity market. But when I am reading the paper, I am feeling that this is one area which has been not given adequate attention. We know that climate projects are very risky projects. That risk capital can come only from the equity market. We are lucky in India that we have well developed equity market. But are many other emerging market economies that don't have that much developed the equity market. Now, same is the case with the debt market. So, debt market is one area which has not been paid much attention. Of course, efforts have been made, but they have not yielded any results. I think Malaysia is the only country which has relatively well developed bond market. I am talking about the private corporate bond market. I am not talking about the government bond market. I think we need to focus on developing both the markets. Debt market, private corporate debt market and the equity market so that enough funding can be raised from the private sector. I think you mentioned what the banks need to finance the infrastructure projects. I absolutely don't agree with this. Banks are not the instruments to fund infrastructure projects. These are long term projects and the banks don't have long term funding. They depend only on short term funding. Banks in India had financed long term project but we have seen the consequences. Very recently banks have come out of that problem. And the second issue is that banks don't have project appraisal skills. In order to finance long term projects, you need project appraisal skills which banks don't have. So, I would beg to differ on this point. My next point is macroeconomic consistency. I am not too sure whether the scale of external capital which we are expecting would really happen. The experience has been very disappointing and the quality of capital which has come that also leaves much to be desired. So, assuming that the external capital comes, are these so many developing economies which we are talking about have the absorptive capacity to absorb that kind of capital. I am sure it would have serious consequences for the macroeconomic stability. Either they will have to face appreciation of the exchange rate or they have to face a higher inflation. So, I am not too sure how to handle this issue. My second comment is relating to that, I think your paper largely focuses on supply side barriers. But I think there are also man demand side barriers which your paper has not considered. One of course, many countries are highly indebted. I have some data. Total debt of developing economies, which was 35% GDP has gone to 60% GDP now. External debt which was 19% in 2010 has gone to 29%. And total debt stock has reached 11.4 trillion now. Which is huge. Recently IMF has come out with their assessment of debt sustainability, they find of 69 low income countries 10 are highly having debt stress, seven have low risk of default, 26 are moderate risk of default and 26 have high risk of default. And most of these 26 economies which have high risk of default they belong to the category of least developed countries and they are largely from the African region. The issue is that unless this is addressed, how can you raise private capital. Its almost impossible. And other issue is about there are countries actually which are like… this is of course, the debt data I have given. There are also countries which have very low rating. The issue is that how can even some of the development finance institution in those countries have not been able to help. So, the issue is that how do we de-risk those economies which have very low rating. My third and last point relates to the ticket size. If you want to raise finding from large institutional investors then the ticket size has to be up, because they don't find it easy to invest in small ticket size. I have some data which shows that medium size of blended finance vehicle was US dollar 55 million between 2018 and 2020. But institutional investors typically, they invest US dollar 100 plus million. So, that means you need to aggregate if we want to mobilize funding from these large institution investors. We need to aggregate small loan ticket sizes and I think DFIs and MDBs would have a big role to play in this. This is what I have. Thank you very much. As Dr Mohan mentioned the paper raises very important issues. This makes a good contribution to the literature. Thank you very much.

Rakesh Mohan:

Thank you very much, Janak Raj for those very useful and considered comments. Renu, you are on. Since you are the only lady in the panel, you can take 10 seconds extra.

Renu Kohli:

Let me start by adding my compliments to that of the chair and the previous panelist Mr. Janak Raj. I have a set of remarks which are either complimentary or attempt to fill in some kind of absence that I perceived in the discussion at various points in the paper. It is a very nice summary. Broadly as I can see, I think there is a need for a greater distinction between private and public capital and investments related to the green transition. So, I find there is some kind of a diffusion there. I agree with the disappointing history of private participation in public infrastructure throughout after the 50s. In addition to the points that you have made about financial market exposures and so on, it could be a double edged sword in the context of green transition. Because it also means harmonizing or at least having convincing or kind of a common standards of regulatory frameworks, environmental norms and that is a challenge that is not easy for the set of developing countries to overcome without sufficient global cooperation or harmonization which is not so visible at present. Having said that, I think we should just stop expecting private capital… to take the private out of private capital. It's just impossible. It is going to be what it is and there are always opportunity costs and we should accept, it needs to be accepted that private capital will always flow to where the returns are higher or highest. So, one example that I can give in this regard, a possible pathway, which is that of private investments into renewable energies. Now, what has motivated that is falling cost of technology, certainty, policy clarity, direction and targets and that is what is happening. So, that is one pathway that can be adopted. It is also happening, not in India, but also in the case of electric vehicles in the advanced economies, notably EU and the US and UK, who have far more advanced targets compared to India including embodied national legislations as well. So, that is the next point about private capital. How can that risk be defrayed, those are very valid concerns that have been raised in the paper. Here also we can see, some kind of solutions emerging. We do not know how clearly but at least the world is thinking about it. Multilateral attention is focusing upon it and that it relates to the MDBs and the blended finance and those kinds of concepts and the report of Larry Summers and NK Singh in that context. So, those are encouraging developments and some points we should be benefitting or there should be clarity about that. There is a concern, we tend to think with all the amount of capital that is there, the estimates of financing requirements which has been discussed by others including Dr Mohan as well. It kind of becomes an event whereas actually this is a process and a large part of it is already playing out and has indeed been doing so for several years. So, the question is of pace and this pace, what is absent in this paper what I felt was the role of technology. That's very important. And given the vast amount of resources by some of the richest countries the US inflation reduction act and so on into technology, climate solutions for technological solutions for green-ification and climate related tech and so on, I tend to be more on the optimistic side. And if that were to happen, a scenario which replicates that of solar or that of electric vehicles cannot be ruled out. But having said that there are constraints and there are going to be constraints and so the pace is not going to be the same simply because as you yourself made the point, about the scarcity of critical minerals which are inputs into that. So, those constraints are going to delay the transition or at least moderate the pace. Who gets there first is the one who affords it the most, A. B, the ones who have the most advanced targets. There are countries which have targets of phasing out ice engines and ice vehicles by 2025, 2030 and so on. And that brings me to the point on which you made a very passionate plea about competitiveness and using sacrificing… not sacrificing growth and keeping it here. Consider the other side. India actually stands to lose a lot in lag behind and lose competitiveness if these countries go ahead and decarbonize technology changes and so you have no option. So, I think that tradeoff somewhere needs to have that at the framework and that's why brings back to the role of evolution of technology where history actually… historical examples can be used to see that. The role of regulation and subsidies, yes, at this point is very important but if you can see that the largest economy in the world is relying upon regulation, which is the US, it is relying upon regulation and subsidies, but towards market driven solutions. It isn't that keen on carbon pricing though Vitor also told me that there is a lot of support for carbon pricing in the US. I disagreed with him over that. I think many of the points are made… I think I have some. On the public financing bit and the macroeconomic costs, yes. I have some disagreements or you know maybe agreements with Janak Raj on that. Given that India is the largest and the second most important after China in the global reduction of CO2 emissions and meeting of the Paris climate goals, I assume that the discussion is not about India on this context. The discussion as you think completely rules out because it talks at the starting point that growth plus financing the green transition, so, the baseline is what it is, we are not going to do anything over there and we need more. And that's where the distinction between public and private, which I did not spell out so well earlier. But if you see the transition in India even now, all of it is literally private sector led. The renewable energy generation is entirely in the private sector pretty much. NTPC has yet to get into it. And that's a massive shift from the public to the private sector. So, the government may lose revenues but it may also not have __. Second is, if you take the pace into consideration, the phase out of coal and in relation to relative to our own nationally determined targets, which is gradual phase out, then a lot of the organized sector employment in coal for example, the coal India says its organized sector employment is 1 million workers plus a large amount of indirect economy. But let's talk about stick to just organized sector. If that is the phase out and if that is the pace, a lot of it going to happen through natural attrition. Father worked in coal on retiring but the daughter is going to work in solar. So, the challenge is about labor market flexibility, reskilling and redeployment, at that level, low income levels, India's labor market is actually quite flexible. I am not saying it to dismiss the argument, but mainly to say how and where policy attention ought to be focusing. I am done… the macro costs, yes, I do not agree with those assumptions. What about my extra 10 seconds? It doesn't consider restructuring of public expenditures and competitiveness has… so the tradeoff is not so straightforward. So, there isn't a trilemma in my opinion. Thank you very much.

Rakesh Mohan:

Thank you. Anant and Gulzar, as you have seen from the commentary so far, and I emphasize so far, lot of thought for you. Now, Montek you have actually minus 5 minutes which we will increase it to ten.

Montek Singh Ahluwalia:

I don’t mind doing the overview after.

Rakesh Mohan:

No, no. not sensible at all.

Montek Singh Ahluwalia:

Anyway, thanks a lot. I am not going to take ten minutes because there is a lot of questions. First of all, a very good paper. I really found it very conveniently brings together lots of other stuffs that has been said. And it is in a way the most convenient place to put it all together. I couldn’t help feeling that the issues you raise that is going to be very difficult to get all this private capital that everybody is talking about, very credible. Not that you are saying you shouldn't. It is very complicated but not going to happen that easily. This is an implicit criticism of the Singh – Summer’s report. So actually, you should have asked N K Singh to give an expert overview. Because if you read this thing… I think this was Rakesh or someone else who raised the same point… that I don’t know whether these issues are gone into in detail in the context of G20. Usually, they are not. But the reports that go to COP28, Nick Stern and Vera Songwe have sort of sanctified the notion that X is the amount of money we need and somehow created an atmosphere that if only you endorse that then the transition will take place. The reality is that this X is nowhere near around the corner. First of all, they recognize that the mood is not there to increase public international funding. I don’t blame them for it. That’s the reality. So, what they then say is that this is what we need, so most of it must come from the private sector. Because there is nothing here. Well, that’s like arithmetic. A more fair assessment would be that multilateral funding can leverage private sector. So, lets decide how much multilateral funding you’ve got and lets also decide whether you can leverage a bit more. At the moment the leveraging is very low. If you put all those constraints together the numbers in both the Songwe-Stern and Singh-Summers are a bit pie in the sky. Don’t blame them for it. Because international negotiations live on pie in the sky numbers. So, that’s fine. But when you come to something more specific and this is really the crux of it, is there an agreement? We will get some increase in multilateral funding, nowhere near what they are talking about, we will get something. So, is there an understanding that the multilateral funding should be restructured to maximize leverage? Now, to be honest, to do that they’ll have to do something very different from what they normally do. Normally they go and fund a public sector project. In a way what you are saying is they should do ten times that. And we need that money and they are not going to have that money. So, should we try to persuade them to do leveraging. And if they are going to do leveraging, what is the scope for leveraging and what exactly do we mean? For example, is it going to be the case that the World Bank and ADB and others, they are going to say, look, we want now fund private sector projects which is the way you do leveraging? Then these fellows will not be requiring a government of India guarantee. Is that clearly understood? Is the World Bank happy with that? If they are not happy with that then they are just doing public sector funding, there is no leveraging involved really in any worthwhile sense. I know that a lot of people say that you have these huge risk premiums etc. and somehow MDBs must reduce the risk premium. How? By actually intervening? If you like the forward market and taking a bet on the rupee? I am not sure, nobody’s actually said that. If they are not going to do that, what the hell are they going to do? You could argue, you could actually argue, that the reason why the leverage risk is so high is that these are sectors where policies are quite mucked up. There is a lot of… even Renu said that there’s lots of stuff going on in renewables which is a demonstration of the dynamism of our private sector which I am a great supporter of. But you know, the truth is that they are responding to the government saying, you will, you will buy 30% of your energy renewable, 40% from 2030. Its not market process. Its direction. Okay. In addition, you have invented ways in which the RBI will somehow debit the state government in case the Discom doesn’t pay. I think these are good things to do to begin with. Because they do demonstrate that there are people who are willing to take those risks. Not in every country, but in ours. But that can't be the basis of going on for the next ten years. Actually, I personally feel that we really need to ask ourselves the question, what are the three or four critical policy reforms in these sectors which can be done. But then are we saying that the multilaterals should be encouraged to push them? Take for example, distribution reform. This is not a central government issue. So, if the distribution companies are in a mess, you can't blame the central government for it. Its all state government. So, do you want and I personally think by the way, it’s not a bad idea. I don’t know whether the central government will be happy with that. The central government just tells the multilaterals that look why don’t you come along in and go to whichever state government you want and offer them a good deal for reform of the distribution system and we’ll see if your stuff works. I am personally opposed to this business of ADB coordinating with the World Bank. I think they should compete. Let the ADB do it its way, let the World Bank do it its way and let’s see what comes out. But this will require the government go do something very differently. Its not just the World Bank. I personally don’t think that these issues have been so to speak adequately examined. That’s not a complaint. But to my mind we are just beginning this energy transition. In another year, COP28 will come and go and COP 29 will follow in close succession and pretty soon people will work out that these organizations don’t actually add up to any kind of decision making process. There is more a sharing of slogans which has a role. But then the issue will come – are the multilateral development banks, not just the World Bank but also the European investment bank and these other fellows, are they being given different directions? And my guess is that that’s going to be very tough. But that’s where the action will be. And we needn’t get too worried about the total size of the gap because that’s not going to be met. Not in the near future anyway. So, I think there should be more focus on what exactly is meant by an innovative way of reducing risk. I don’t think that… I am not sufficiently familiar… I am not sure that __ paper persuades me that he knows exactly what to do. To my mind there is too much of an assumption that financial engineering can lead to real economy changes. And the last time they did all these things, we know what happened. So, you want to be a bit careful on that one. So, those are my main points. But I think you bring out very clearly that the numbers are huge and they are way out of line with anything that the private sector has done in the past. But this has the other implication that there’s not going to be that much mitigation. So, the fellows who worry about mitigation need to think again. Maybe we could end up doing a better job than other countries if we are clever about it. Because there won't be enough countries willing to enter into this. But then again, I am not knowledgeable on this, but I saw a news report saying that we had rejected some kind of just energy partnership saying this is not the kind of thing we want. I wasn’t sure about what the reasons for that were. And there are many other I can think of. If you want to comment on that that would be quite interesting.

Rakesh Mohan:

Thank you very much, Montek for that really, I wouldn’t say overview, but broad commentary on their paper and what's been said today. Laveesh, can we go over by 15 minutes. Or 5:15

since I am 15 minutes late. Half hour. I have your permission, Laveesh. Thank you. Let me just start first with my own comments or questions. I try not to repeat what others have said. To some extent what you are kind of saying is that the monopoly of numbers in this game which has been cornered by my close friends Amar Bhattacharya, Nick Stern and Vera Songwe, who I don't know, need to be challenged. Because I have been looking at these things. And everywhere I turn the same reference comes up. And Dr Janak Raj and I have been looking at the sources for those numbers and they are not easy to find. So, one just comment is that in some what the paper is saying is look, these are the numbers that are there in the world. They are very large numbers. So, the question is, can the finance ministry or collection of us in some sense try and get a handle on at least India numbers. Global I think it's just too much. Two, many of the numbers go up 2050, 2070, 2040. I know I will be dead by then for certain. So, 2030 makes a lot of sense to me. Or 2035 for that matter. So, I think a lot of… again from just let me focus on India… that it would be very useful of some of the things you've said, what do we actually do in India to approach what we ought to do by 2030, 35. What are the realistic numbers. Two, this is common G20 process. So, I was kind of a sometime silent, sometimes not so silent participant in some B20 virtual meetings. And what I found was that the B20 sort of goliaths in the B20 group, all the suggestions were to get more public money. Not one of them said that we think if you do this then this money will come. But they were asking for larger volumes of commitments from governments than the World Bank is asking. From US treasury, developed countries etc. which they are not giving. They are happy giving 100 million to Israel but total capital of the World Bank is19 billion. So, but in the B20, the private sector, none of them said, look, here's the money that we can do or we can invest. They are all asking to create another institution with far more capital. So, I think that one suggestion with Brazilian presidency is to give this to B20, look we don't want suggestion from you on what government money should come. We want suggestion from you how this is going to be done from your side. But they are not doing it. I said this two three times. But I said look, this is not my business, so I stopped it. Finally, just last comment. This partially connects with what Janak Raj said on higher tax GDP ratio. Because what you are saying a lot in the paper is, look, you have to do much more public sector, publicly funded projects for all these objectives for climate change mitigation and adaptation. Now the question raising to you now, I am going to say directly, look, this is one issue that is clearly intertemporal. And not just 2 years or 5 years. Its 10 years, 15 years, 20 years, 30 years. But the one mechanism that we had in this country to do that we have abolished. That is the planning commission with due respect to the last deputy chairman of the planning commission. Maybe you caused the abolition. But the serious point is that, look, you are talking about a lot of public sector action and Gulzar you are talking about state capacity right, in your other work. The question is that if we do these things in the public sector which you've argued forcefully, because they are public good to be financed, then what state capacity will have to build. I am just talking about this country, because I see no mechanism as far as I know, I don't about inside the government. But I don't see an intertemporal mechanism in the current system to really look at these large problems and then say look, next 7 years we will do this. 5 years, 10 years etc. I will stop there, I can go on much longer. So, that's it. Before I think you respond let me get the audience into action. Amshika?

Audience (Amshika Amar):

Thank you very much, for the presentation. I worked with IFC on private capital mobilization and so I do know a bit about it. Essentially when you showed the graph on sovereign credit ratings and the rate of returns and the reason why the rate of returns is so high in low grade investment countries is because the rate of returns the investor asking is extremely high leading to 20% in some countries. And I think that is the reason why it is high. Because there is so much of risk investing in these countries and that is where essentially originally the MDBs come into picture. Because they were able to raise money in capital markets and invest in these development projects and IFC was investing in private finance projects. So, I think I have also worked in guarantees and obviously MDB finance is one way to finance these projects. But I think there is a huge role that guarantees can actually play. Because as we saw in the Ukraine war within 2 months, they were able to raise a lot of money only because the top five advanced economies were giving them huge guarantees. Was giving Ukraine huge guarantees. So, why can we not sort of also raise more private capital, let's say if Japanese investors want to invest in India, through a guarantee by the Japanese government. So, I think the role of guarantees need to be explored more. Obviously, we know that when MDB raises finance and capital bond markets is because they have guarantees by the advanced economies. They have callable capital and that is why they are able to raise it. But how about getting guarantees directly from the governments. As we saw its possible as it happened in the Ukraine war. I think also in terms of local capital bond market, I am also working on LCBMs and it's also important to raise and obviously Mr. Gulzar said that there is only finite amount of money that can be raised by LCBMs. But we need to focus on its deepening and NDB, the national development bank is also trying to raise money in India through these bonds and invest in Africa. So, there is more of interchange of private capital… also I think the role of LCBM sort of essentially plays in private capital.

Audience:

(Inaudible)… private sector wants high interest rates. Government tells them lower your interest rates, but at the end of the rainbow which would be 5 years or 10 years we give you benefits that make up for it.

Rakesh Mohan:

Thank you. Any others? I have a couple of questions from remote listeners. So, the first one is, can the authors delineate some short run, medium run and long run strategies to attract more global private capital? Can one say that Indian policy makers in particular don't have a very sharp understanding. I think he is referring to you… (laughter) don't have a very sharp understanding of the working of the global capital markets. As a real return is so low in rich economies and yet India is not able to attract capital. Where are we failing? So, that is one. Then question by Ashim Roy. What is the role of concessional finance from MDBs that could be leveraged with stringent leverage targets given the cascading finance requirements to mobilize additional private capital?

V Ananta Nageswaran:

The moderator has told us to go with the first in first out approach. Which is that the discussants comment we take them on. Gulzar will chip in where I do not address some of his comments. I think there are few areas where he said the point was not made as forcefully as we could have been. For example, on the role of public sector. And then also while we emphasize the importance of public sector he said, the paper didn't address the question of how to improve public finances in terms of addressing the fossil fuel subsidies or tax to GDP ratios, etc. I agree with that. Our focus was more on pointing out the issues concerning private capital and with respect to mobilizing domestic resources we focused on the importance of ensuring economic growth. We did not go into improving public finances which is a challenge which exists independent of the energy transition issue. So, that is why we didn't focus exclusively. But the point is well taken. The role of financial markets not enough attention has been paid in the paper. Again, I think capital market reforms whether we need to develop domestic currency bond markets etc., I think those are again independent of the funding requirements for energy transition. Even otherwise non-energy transition related infrastructure requirements do necessitate us doing focusing on what kind of capital market 3.0 that we need to have between now and 2047. So, there again I would say the point is well taken. I am going to leave it to Gulzar to answer your comment about banks and infrastructure projects. I think probably he had a slightly more nuanced idea in mind. Talking about ticket size and demand side barriers, we did address demand side barriers such as indebtedness and capability and the shelf of investable projects etc. while there could be legitimate disagreement on the depth of coverage, we did talk about for example in section 4.4 on the recurring debt defaults. Now in this context if you ask them to take on even more debt… so that issue and also section 4.6 takes up the political economy and state capability challenges and the shelf of investable projects in this country. That is why the de-risking solar project in Zambia we took that up in the paper quite a bit. Dr Renu Kohli's comments were also quite in line with some of the comments that you had made. She said we should expect private capital to flow to areas where returns are highest. We agree. That is how it should be. If that is the case then they would come in much later in the process so the areas where we would want to see investments happen, we cannot rely on private capital to do so. So, we agree with your point. And that is why we emphasize the role of public capital in some of the early stage technologies related to energy transition. And she also makes an important point. What is absent in the paper is the role of technology in the paper, I think we agree. In fact, some of the most effective technology could eventually be related to renewable energy storage or even carbon sequestration. There again we did say that, given the nature of these technological innovations, perhaps its appropriate that some form of international public capital finances them rather than expecting private capital to do so. But I take the point about technology could obviate some of the constraints that we are discussing today. She also touched upon public financing and macroeconomic costs. She said the way we posed the impossible trinity of net zero, it may not be as acute as we have portrayed it because there could be reform of public financing such that some of the constraints are not so binding as we made it out to be. The point is well taken. I suppose this is the author's license to exaggerate to make a point which is what we made use of. Sir, as to your comments especially on the just energy transition, my understanding is that India's reservation stems from the fact that the JET partnerships mandate a particular time line for phasing out of coal. Whereas India feels that it will increase the non-fossil fuel by phasing in renewable energy without committing to specific timeline s on phasing out of coal at this point. This I again understand from the ministry of power and renewable energy and the ministry of coal as this is the key area where we feel they are dictating the timelines on how we will, when we will phase out the coal plants etc. So, before you walked in, we also showed that the vast majority of India's coal capacity is less than 10 years old. So. The phasing out will involve substantial cost. That is why there is a reluctance. But this is my understanding sir. Of course, we actually weren't exactly contradicting the second volume report of the independent expert group on private capital. But we definitely wanted to temper the enthusiasm on the scale of private capital that could be mobilized. The point is well taken there. I think one comment which you made and I hope I understood that rightly. Is there an understanding of the way the multilateral funding needs to be structured in such a way that it leverages private sector funding? I think to some extent the second volume does touch upon this. Which she also made in her comments on blended finance and guarantees and so on. But I think your point is very well made there. We need to do a much deeper dive into that issue. I think broadly speaking I have addressed most of the comments. I think the two comments came from the audience I would take them in the nature of comments rather than questions and before Gulzar goes on to address some of the other aspects specially to comments by Dr Janak Raj, short long medium strategies to attract more global private capital. We should take permission from Laveesh to extend the session up to 7:15 pm to address that question. So, I am going to skip that. Can one say that Indian policy makers in particular don’t have a very sharp understanding of the working of the global capital markets as the real rate of returns is so low in rich economies. I suppose the person who posed this question has probably not kept up with the monetary policy developments in the developed world in the last couple of years. So, the rate of return is not low enough for this to attract. I think things are changing. And I think regardless of whether we have an understanding or not, the scale of the sums involved is so humongous that it is not a trivial challenge here. Are we failing to manage the global capital market expectations? Well India has been one of the largest beneficiaries of portfolio inflows since 1994. So, record of attracting portfolio capital actually addresses this very question that we are not failing to manage the global capital market expectations. Questions by Ashim Roy, what is the role of concessional finance from MDB that can be leveraged with stringent leverage stack given the cascading to mobilize? What is the role that government can play to provide a transition platform? I think those are covered by the independent expert group reports. What role that concessional finance can play. And also, what governments can play in terms of de-risking and providing guarantees, those are very well covered in the two independent expert group reports. I won't go into the details now. So, couple of remaining questions we will have Gulzar answer them. Your question… sir, my apologies. You were saying basically focus on India, what should India be doing by 2030, 35? And what are the investment requirements for that. Sorry, that is a very important question. Sir, in fact I must tell you, there is an exercise afoot. And we have got some first or two drafts such reports by one of the multilateral development banks. We had posted a lot of questions because those exercises somewhat simplify or oversimplify the problem. They haven't taken into account many costs that would be incurred. So, we agree with you that numbers are all over the place for the global level. So, at the Indian level what is the requirement for our net zero transition. So that is an on going exercise as far as I can tell you. And you made a suggestion that this is an issue about state capacity and public finance’s intertemporal mechanism and is something that we need to work on together. I take your point. I think it is I agree with you. And this needs to happen independent of this issue.

Rakesh Mohan:

But only thing is in this issue there is clearly…

V Ananta Nageswaran:

I understand. But the most interesting point which is easy to do for us is to tell the B20, under the Brazilian presidency that what they would be offering in return rather than asking what the governments should be providing. So, that we will do definitely. Of all the three important question you posed, this we will take up for sure. Its easy to place demands on others which I will do.

Rakesh Mohan:

Just one comment. You said the MDBs and World Bank whoever is giving us these numbers for what we need to do, why are we asking these fellows to do it? There is enough capacity here, we have been doing it for ages. Right. So, for the government of India to ask those characters, who know much less than we do to do these numbers.

V Ananta Nageswaran:

It's a point well taken. It's a joint exercise, it is not just that we are asking, we are only taking their inputs, but ultimately, it's our number. Not their number.

Gulzar Natarajan:

Thanks, Anant. Thanks for all the comments. Just a couple of questions which Mr. Janak Raj had raised. I have worked in two sort of roles. One currently in particular as secretary finance and before that in urban and in electricity distribution. And then I had this four year outside as a sort of an impact investor, looking at social impact space. What we realized very quickly is that, like when we look at this infrastructure, we look at all this conversation, everything about this private money is basically two sectors. Transportation and renewable generation, not power. Renewable generation. Transmission, gradually has started to get de-risked. We are perhaps in transmission today where we were in generation in 2008-09. Or 06, 07 or 08 r 09. Distribution, you talk about pick up an urban sector, pick up solid waste, pick up water and sewage. Forget distribution of water supply for domestic consumers. Industrial water supply. In some ways like, clean, you have five bulk consumers, you have a source, you have a pipeline, you deliver water to them. How many such water projects are funded by private investments? As a finance secretary in Andhra Pradesh, I appraise or like I see projects on ports, airports, the entire spectrum of this thing, private investors. Who are their major financiers? Banks. Europe, we talk about bond markets. BIS, McKenzie, euro money, all three have very regular reports which document the share of …Perkin of course… the data provider. Just go there, look at the share of bond market capital financing of infrastructure. Its 10% or less. In Europe 60% of capital market of infrastructure financing comes from loans. Syndicated loans, various kinds of maturity transformation, structures built into it. And we don't pay any attention to that. Just look at our municipal corporations. The World Bank recently came up with a report. The debt exposure of municipal corporations, in terms of funding of infrastructure projects through debt, is 4%. Now we have been trying to for example… when you look at a water project, certain parts of it are eminently financeable with private capital. You need to ring fence, you need to do a little bit of… industrial water for example. We got four or five industrial water supply projects, we have been struggling to get a private investor to invest. And the private investor invests and the private investor… where do all our road developers get their money from? Their debt from? Is it bond markets? So, I just wanted to provoke a little bit on this. We need to look at the hard numbers and see where is the capital coming for all these projects. Not just in our country, but elsewhere. Except China and Malaysia is a very good example. Malaysia is actually one of the very rare countries which has been able to some how or the other break out and make some headway with bond market financing of infrastructure. Malaysia, China and US. We talk about guarantee, its extremely attractive. I mean, come to think of guarantees, it's just like how you add this layer of credit enhancement or like first loss buffers or whatever and then you hopefully… you think its like easy to unlock. How much has __ lent in its entire history of existence. 15 billion? I would have imagined that should have been leveraged in one year or 6 months. Do we need to have… we have tried all sorts of things. I have been hearing about guarantees. We have tried in corporations, we have tried in electricity distribution and these were by then, at that time these were like double A rated entities. People are REC and PFC were willing to knock at our door steps wanting to lend to us. You try accessing these markets. The transaction costs are enormous and ultimately you will get it whatever howsoever much credit worthy you are, you will get 100 to 200 basis points higher. Why would I as a… here I am a double A rated entity. I am a very good corporation, I am a very good distribution company. Why would I want to borrow at 200 just because it's got the imprimitive of bond market thing? Ok, you will have all sorts of things. So, I just wanted to provoke on this. Second point, an institution like NIAF or IAFC or all those DFIs, they have an important role in pipeline development. It's one thing to say that we will invest in these projects because they are commercially viable and that's the downstream side. Upstream, as an impact investor I was as a fund manager, I was evaluating based on my pipeline. How good was my pipeline? And pipeline development requires active sourcing, active structuring, building up the… in some ways these are things which don't get discussed seriously in public forums. So, I just wanted to sort of lay this out there for just debate. Just wanted to surface these as points for consideration.

Rakesh Mohan:

Thank you very much, Gulzar. Especially from my side thank you so much because on the bond market what you said, I have been saying since I was in the RBI. But I have one point on that. Very interestingly in the last 15 or 18 months, the MDB's importance has increased tremendously to the extent Anant even goes asked them to do our calculations. But my serious point is, look, everything that you exhibited on the PPPs okay, the World Bank has known since _ Washington. At least. 2008. Since then. Okay? And yet they kept on pushing this stuff. All right? So, why do we have any faith in their wisdom? Two, on bond market financing, now these characters sitting in Washington, I used to be one of the characters for quite some time, so, we have done this, they'll do it, but what have they demonstrated? You are absolutely right about bond market financing. In the US also by the way, very little infrastructure through bond, private bond financing. The bond financing is mostly public sector, that is the whole urban infrastructure ministry is to municipal bonds, that's public sector, not private. Similarly public authorities, in the US all major airport authorities are public sector. All port authorities are public sector. But they are all __ ports. They have private sector operators. So, this sort of myth of bond market financing for infrastructure is a myth. But these fellows have been promoting it for ages. I can spend only one day to find out they are wrong. But why are they promoting it. Why do you have faith in them? Again, I have been… I get my pension from them. So, I am very happy that they exist. I hope they keep paying my pension. And keep earning money from projects. Europe for example also, actually in Germany certainly, almost all the bond financing for infrastructure is through fund briefs, which funds again public authorities. State governments as well as local authorities and so on. So, bond financing the private sector is a myth. But these fellows keep promoting and you want to listen more to them. That's a puzzle for me. Again, having been one of them. This is very interesting what you have written. I think more work needs to be done. And one of the local issues by the way on bond financing, the problem is on both sides. The supply side and demand side. Supply side, almost all bond financing in developed markets is done by institutional finance. We have still a very infant institutional finance because pension funds etc still very small. It will take a long time, life insurance etc. on the supply side. On the demand side, as you know from the government bond market, bond markets work when there's repeated insurance. For repeated insurance it has to be established corporations. Infrastructure SPVs by definition can't repeated finance. So, anyway, I am very glad I just want to say at this and Laveesh it is 5:14. One minute for you. But thank you once again, thank you very much. Very, very useful.

Laveesh Bhandari:

Thanks, Gulzar and Anant. And thank you to the panelists. First of all, I would like to thank you for deciding to write this paper. And to also send it us for publication. And I hope that all the feedback that you have gotten has inspired you to write the next one. I don't know how you get the time to do this. I can see that you don't sleep. But I hope you continue not sleeping to get the next one. You know, there are lots… this whole interaction has been really amazing. For many different reasons. But one which you may not have thought of has been that it really provokes thought amongst the researchers here. This interaction that we are having has not happened for such a long time where you are sharing some of your experiences and some other experiences from the past are being shared. And researchers are looking at it. Because we do need to unpack what is being told to us. And I am so glad that both from your paper, as well as the comments from the discussants and from the question and answers, at least a lot more questions, have come up. So, I won't take much more of your time. I just request Dr Mohan to give the final vote of thanks. But this is really been an amazing experience.

Rakesh Mohan:

You take another 10 seconds. Get them to commit to doing their credit rating paper here.

Laveesh Bhandari:

I thought I had already done that. Thank you. And thank you everyone for staying on for a bit longer. Thanks.

Rakesh Mohan:

Thank you everyone. For both of you for having done some hard work. And you especially for much more hard work. Gulzar.