

Session 2 : Green Financing and Policy Frameworks

Ms. Heena Goswami: I now request Shri Subrat Tripathy who is with Adani Group to take the lead for moderating this session.

Shri Subrat Tripathy: Thank you so much Rajesh Ji. Susant Ji thank you so much for the wonderful wonderful host that you are. Now being conscious of time and the fact that we are staring at my watch says about 10 past 1500 hours, 1510. So we'll take this. I know Heena ji has already introduced the members of the distinguished panel so I wouldn't take this thing. I would rather that I know kind of scratch and pick your brains a little on this. So that is how it is. So without much ado and if you've all settled down very quickly we had a very interesting opening session and insights on the way the port sector and the maritime sector at large is developing. Green being one component of it, a very engaging session thereafter where people are very forthright on their views as to what and where we should go. So without much ado, the fact that the session handed over on something very important is the necessity of a net transportation product in the country which is kind of skewed in favor of the road today and the fact that we've not exploited our waterways to the extent that we should have and also the fact coupled that India is a land of rivers. We are known for rivers. We're known for civilizations that have enriched ourselves on the banks of the rivers. Having done that sir, I'll come straight to you Vijay Kumar Ji as he holds the mantle of IWAI had the pleasure of interacting with him on a very fascinating you know session on NW5. So without much ado where and where do you think is as far as the inland water is concerned what is the leap of faith that we in India need to take to come into that really sir and as you go on how do we weave inland water into a larger strategy of coastal shipping and then on into the desire of India to become a supply chain also aware of the fact that we have very stiff LPI index which are logistics you know productivity index and the IMC. So we begin sir with first the IWAI and how do we weave it forward. Thank you.

Shri Vijay Kumar: Thanks for these stimulating questions. So as chairman IWAI first of all let me tell you where we stand in terms of cargo movement on our national waterways. So in the last 10 years the cargo movement on our national waterways has increased at a CAGR of 20% plus. So we used to carry about 18 million metric tons of cargo in the year 2013-14. Last year we crossed 145 million tons of cargo. So there has been a tremendous increase in the cargo that we carry and right now we are carrying a little over 2% of the modal share of cargo where we compete with basically rail and road. So when we talk about competition with roads we always say that our waterways and inland waterways the cost of moving cargo per ton kilometer is the least on inland waterways. In fact, we compare the figures based on a World Bank study. It's about 50% cheaper than on the road. It's about 20% cheaper than rail. But where the problem is basically twofold I would say. One is the lack of connectivity on the first mile and the last mile. The multiple handling which takes place. If cargo has to reach my terminals, it has to undergo multiple handling. It has to come from the factory

to my loading and unloading terminal again. It goes up to some warehouse from there again to the consumption center again with multiple handlings. So the cost advantage that we have on the actual movement on the waterways is lost in the multiple handlings. Second is when we compare with rail and road we are supposed to take away cargo from rail and road to waterways but in terms of aggregate investment on waterways what is it that we are investing so we did a study the budget the expenditure on rail and road is about two lakh crore plus two lakh crore per annum plus and the budget of inland waterways is about 1,500 crores so we are actually competing with rail and road with a budget which is less than 1% of their budget. It's very unfair competition. So because of the lack of last mile first mile the transport on water becomes much more expensive. Secondly we don't have adequate investment. So to address this problem we came up with a scheme called the Jal Vahan scheme where we are incentivizing about 35% of the cost of transport on the waterways. So this scheme has just started. We are implementing national waterway one, national waterway two. The idea is to somehow take away this cost differential between the road and rail. So that will be one part of our strategy going forward. The second part of strategy is we have to address this first mile and last mile. For this we are developing multimodal hubs on the waterways. We are starting with national waterway one in Varanasi. We already acquired land. So we're developing a freight village there. So again the idea is that the part which pinches the most that gets addressed we're also developing a hub in Sahibganj. So as these multimodal hubs come as this scheme comes into play we will be able to compete with the rail and road. We're also trying to increase the investment in the waterways. We made a project pipeline of about 50,000 crores. With this we hope that the difference in investment which goes into waterways is gradually narrowed down. We are also looking at having a complete ecosystem for waterway movement. We are developing ship repair facilities on national waterway one and national waterway two. We are developing training facilities in various parts of the country. The idea is to have a complete ecosystem which doesn't exist when we look at rail and road. In fact, when we compare our waterways with international experience, for example, Europe, people talk about European waterways, the challenges that we face in Indian waterways are much more immense. The kind of siltation that our rivers have. In fact, in the Brahmaputra and Ganga, the siltation load that they carry is almost five times 10 times that of the Rhine River. Plus the kind of investment which has gone into those rivers. In fact, I was there last year. The budget of the Rhine River itself, Rhine River alone is 5,000 crores and for the last maybe 50 years or so we have been investing only 1,500 crores in 111 national waterways. So there is a huge requirement to increase the investment which goes into waterways. There's a requirement to increase the budget of Jal Vahan scheme also as it takes off. So I hope going forward as the budget increases the scheme kicks in and we'll be able to attract more cargo from rail and road. Then we talked about coastal movement. So 85% of my cargo which is coming in today also is actually linked to coastal movement is actually linked to port movement because that movement is the most viable and in that movement the multimodality is getting reduced. So that is our bread and butter: the coastal movement, the cargo movement, the movement linked with ports. So we are working on that. We are actually conducting a study to find out what more coastal routes can be integrated with the waterways. How we can get RSV vessels which will again reduce the cost of transportation and the cost of multiple handling.

How we can work on that. So those things are there as a part of strategy and I hope that in the coming times the share of waterways in the overall cargo is going to increase. Thank you.

Shri Subrat Tripathy: Thank you so much. So one does get tempted to ask you about harnessing the NW1 and making eastern India Kolkata as a hub. How do we access the northeast which is a very large part of the Indian population and continues to struggle with the classic chicken neck and also being aware that the protocol route with Bangladesh is not working out. Could you throw some light to the house on the Sittwe route and how could we harness that?

Shri Vijay Kumar: There are two ways to access the northeast through the waterways. One is what we call the Indo-Bangladesh protocol routes. There are 10 of such routes. So, in fact, four of those routes are actually operational despite the political situation in Bangladesh being bad. These routes are doing fine. We carry about four million tons of cargo every year on those routes. So, the connectivity happens from Kolkata to IBP routes. Then we can exit at Pandu or we can exit at Karimganj also. So that part is actually functional in fact not only cargo but cruise movements are also happening regularly. The second connectivity is through Sittwe as you mentioned which will actually bypass Bangladesh. So it's very very strategically important for us if we can have a route which connects to the northeast bypassing Bangladesh. So their connectivity would be from Kolkata to Sittwe through the sea route from Sittwe to Paletwa by waterways from the last remaining part which is basically the road connectivity from within Myanmar to the upper northeast. So the ocean route is there that is functional, the port exists, the port is being run, and the waterway is also developed and constructed. The problem is in some parts of the road which is not complete because of the political situation there. So now the government is focusing on that. I hope that within a year or so that road will be totally operational. So that will be an alternate connectivity. Thank you.

Shri Subrat Tripathy: I'm tempted to ask you something. So Indians' penchant for leisure is improving and we're talking about cruise tourism to a very large extent. How do you see cruise tourism on the rivers? You know, how do we harness rivers for cruise tourism? And before I do, many congratulations on the wonderful cruise that perhaps runs from Varanasi on through to Brahmaputra. But some thoughts on that.

Shri Vijay Kumar: Let me tell you, I think it is not so well known. Cruise, river cruise in India is a hugely successful story. We run the world's most luxurious, most expensive and the longest cruises as on date today. The number of cruise vessels which were which used to be three in 2013-14. The number of national waterways on which these were running were also almost three. The vessels have increased to 25 plus and they are all top-of-the-line luxurious vessels. The cruise that you mentioned Ganga Vilas is the world's longest river cruise and probably the world's most expensive also. The ticket is almost 25 lakh for 50-day cruise and it goes totally booked. And it's not that it's the only cruise right now. Those cruises are increasing and recently you'll be glad to know that Viking has announced its entry into India in river cruise sector they will be running a cruise in NW2 so NW1 NW2 NW3 they are hugely successful cruise operations as well as one-day cruise is a success story

throughout and we are working on further developing infrastructure on NW1 developing various cruise terminals providing various facilities and I think Sanjay mentioned about shore-to-ship power facilities for all cruises so we are actually creating infrastructure but it's a hugely successful story.

Shri Subrat Tripathy: I think the house is enlightened by that and I think the IWAI sector is finally safe in your hands. Very happy to see the circular you know weaving off that you've done and the question on cruise was a provocation to chairman and deputy chairman that you know such conferences can also be held in water you know not on the shores. So you take a cue chairman but jokes aside I've been fascinated by Madame Malini. You know, we've been, you know, kind of watching her in the maritime sector for a very long time and I think very glad to know that she now spearheads the IMU but given her past you know extremely good exposure ma'am into the sector as you know the director general for shipping and the fact that you also we know when we walked into ports we were told you know shipping and ports kind of don't see eye to eye and we had you know we talked about Mr. Joseph who was one who said we should bridge that. You talked about capacity building and there were some thoughts on that. How do you look and let me provoke you this also on the ports. The MIV vision says that three of Indian ports should hit 300 million ton capacity. We have just two ports today which do 150 million Kandla and Paradip well in their own ecosystems of hinterland. We have Mundra doing about 200. So Mundra Kandla together in a space of 50 kilometers doing about close to 18 19% of India's cargo as you see you think this vision of MIV is actually can be translated into action as far as looking at something like 3,000 million tons of cargo 3 billion where do you think then the capacity building would come in terms of seafarers and how do you think the IMU then plays a role as an intellectual capital furnishing or kind of lending support to this sector.

Dr. Malini Shankar: Tough questions. This can turn into 10 PhDs in the IMU.

So as far as the objectives and ambitious objectives of MIV 2030 and MV 2047 are concerned, I think all of us are actually working towards that. Now whether we will reach 3,000 million tons that that is you can't say I will just keep a target of 300 right you look at 3,000 but shipping is a derived demand so it's not that you know I can run ships just because I have ships or I have to run ships or to meet a target there has to be trade so if you look at the geopolitical situation and if the trade comes to a halt or it decreases then even if you have the ships or the ports capacity there is going to be a challenge but assuming that the trade is going to continue to grow and all the geopolitical issues are temporary I think we are going in the right direction if you look at Sagarmala it's spending thousands of crores every year so I do not see I mean as I said we are going in the right direction and that's most important and more importantly we have a strategy which we didn't have maybe 20 years earlier. As far as capacities go I think the morning the kind of I don't know whether to call it address speech insights whatever I think it laid out all the fields a 360 degree view of all the capacities that have to be built regarding shipping itself.

Now there are a couple of things, one is if you look at the university system in India it focuses on knowledge but what the world seems to need now is skills and competency.

So we have to bridge knowledge and skills or knowledge and competency. The STCW of course talks of competency alone. Even today the STCW does not require you to have a formal university degree. But then for various reasons the degree is introduced for career progression etc. So that is one thing. How do you bridge this? How do you reskilling is another challenge. Because of technological advancements, the changes in technology, the changes in the way logistics is being done. For example, we said no, we have to know when the ship is coming so that you can turn around time very fast plus your energy is saved. What all goes into that? It is not just the ship, there's a lot of digitalization involved.

The major challenge if I may place in front of everybody that we are facing is where are the trainers where are the resource people for number one is if you're looking at AI internet of things digitalization I think the expertise is definitely available in the industry in the country but they are not the ones who are resource persons who how many of them are willing to come and say okay I'll consecrate my time a limited period of time in training people this is a major challenge we have to look at that when you look at alternate fuels yes I think there is I'm glad that you know like speakers have pointed out India is focusing on hydrogen hub and hydrogen mission but what would be tomorrow's alternate fuel is still being debated globally right is it going to be ammonia is it going to be methanol is it going to be something else which comes out of the seabed someday so we are unable to fix a training program not knowing what is going to be the fuel. So you are you're going to just top up the training to say be prepared for all this once again challenge who's going to train this is the major challenge that we have to face like in the morning you said where is the money where is you know the financing who's going to finance the second question you can perhaps face and Dr. Dhan did say that what about the capacity building human capacity is as important.

Shri Subrat Tripathy: I'm sure you would have grappled with the idea that you know India's share in the so sitting in Tamil Nadu you know a great seafaring tradition and all along the coast we had wonderful seafaring traditions. India's net share in the seafaring industry in the world is less than 12%. We would desire to take it to 20%. Are there concrete steps worked out skilling in the sector for you know starting from ratings right up the pecking order itself you'll have a lot of seafarers which can have great employment potential and as India goes into many other opportunities for employments across the world this is one which perhaps we've not harnessed. Do we have a desire to take concrete steps on that?

Dr. Malini Shankar: Definitely, if you look at 2017 figures we were only 6% of the global workforce and today it's 12% so if we have moved up from 6% to 12% or 11% in a matter of just nine years. I think attaining 20% is not a pipe dream. The curriculum has to be revised which I think all the institutions are making sure that the curriculum is revised. Practical training needs to be there and there again two challenges. One is I come back to I don't know whether I should go public

about this to this extent is that we do need people with maritime experience to come into teaching we cannot just say the mechanical engineers and the electrical engineers will give this they will be giving the technical and theoretical training but for the practical exposure I think we need more people from the industry which used to happen before okay so that is one of them. The second and probably more challenging issue worldwide and for India especially with our ambition is that there need to be training berths on ships which used to be quite plentiful till the manning scales have been trimmed tremendously for reasons of efficiency, financial efficiency etc. So we can train we at the moment we train about 8,000 seafarers every year we can go up to 20,000 also but you don't have the training berths so can the industry come together or can the government look at we are talking to the government on training ships which used to be the case in the olden times when they talk about Dufferin right training ship TS Dufferin and TS Chanakya we can we go back to that but is it financially viable today so we have to be very clear whether we can't achieve everything at the same time but then the government is definitely having objectives targets as well as strategies to achieve those targets.

Shri Subrat Tripathy: Yes, I do take the point. But then the house would recognize madam is looking for people who have the intellectual capability to come and teach in IMU. So it's an open invitation. You can send your CVs across to her office. She will find out who are the right people to do that. This this you know conference also scouts for networking and opportunities and it is my bounden duty to make that happen. Uh I come to a very dear colleague who's led you know had a very a fascinating career both an engineer in the railways and not anomaly really it's not an oxymoron you know and and of course led the Chennai port I come back straight to you you know Sagarmala theme about connectivity about the four pillars on which Sagarmala stands you know it's about also that and uh you know the chairman IWAI commented about the first and last mile multimodalism in the maritime sector and the connectivity. How much of it is a bane or how much it is it is should we promote a multimodalism or should we let each sector grow in isolation? How do we stitch it together? What are your overall views on this?

Shri P. Raveendran: Good afternoon one and all. First of all, I thank the chairman VCPA for giving me this opportunity to be with you all today with this enlightening session. Yeah. Let me start like this. I'll give you some facts. After that I'll give one of my own experiences which can explain the importance of this connectivity and multimodalism in freight logistics. So Subrat you said when you talked in the morning is responsible and efficient freight logistics which is important in terms of your own LPI logistic performance index and India is looking for next decade to go from fourth to third level of fastest growing economy and third level in this world scenario. The maritime Amrit Kaal vision says that the current capacity ports from 2,600 million metric tons to 10,000 in the year 2047 four-fold increase and ports may be able to go to that level also because there has been lot of improvements and restructuring and you know modernization in the way the private sector has been encouraged to come into the port sector. But this capacity as and when it grows unless you have proper connectivity I think the port sector cannot sustain itself in the long run. Let me give you an example in Chennai in 2006-07 seeing the demand for container trade going up in this country

Chennai port planned for a mega container terminal in the outer harbor along with the road was planned the so-called elevated corridor for about 20 kilometers because the hinterland from Bangalore Bangalore is the major land for container trade for Chennai. This elevated corridor was to bring from that hinterland and from the local hinterland Chennai and all the suburbs of Chennai. Chennai port planned a dry port in Sriperumbudur. Sriperumbudur is the most industrialized suburb of Chennai. Now they took the land and this project was sanctioned. The road was sanctioned. But you see where we are today this road is not reality. Even after almost 20 years see this has put a real block in the capacity addition of Chennai port and it has affected the trade the importance of connectivity for trade and the port performance it can't it can't be at all you know it's so important that unless this is there whatever capacity you increase it's of no use the connectivity in terms of not only road the rail connectivity today the logistics as the India is looking for major role in this international supply chain your domestic supply chain supplying materials to the world trade should be responsible in your own words this responsible environmentally responsible supply chain is a must for other countries to take care to take your exports to increase your business to increase the bilateral trade. This responsible, environmentally responsible logistics depends on a more economically and more environmentally viable efficient transport system. There comes the railways and multimodalism with adequate infrastructure for connecting hinterland and in addition to that the multimodal logistics parks what IWAI chairman was mentioning for increasing their traffic if it has to go on IWAI you have to have so many terminals and same thing with respect to railways and connectivity to the port. The NHAI has started developing about 50 odd multimodal terminals across the country. Yeah, there have been developments, about five six terminals have started at least the construction has started. But again there the pace at which we are going in developing this multimodal terminal also is a thing for real consideration and introspection. Now it comes to railway connectivity. See the rail cargo share in the overall freight basket of India you know in say 1990 it was about 50/50% is road 50% is rail over the years in the last 35 years it has come to around 25%. From 50 the rail has become 25%. And 75% road. This has been allowed to drift away over the years mainly because of lack of capacity. Unless the capacity is developed. Along with capacity you will have to develop systems and conditions for private industry to come and operate. The government will not be able to do business. It is a private entity which can do business. Bring in efficiency, bring in professionalism and bring in marketing. This is seen in the port sector. Morning you mentioned 45% of the port cargo is handled by non-major ports. I give kudos to the people who have come to the private industry who have come and the state governments who have encouraged them to come and they have brought in a lot of practices and those things were telling you about the problem with the terminals in major ports and the problem with the terminals in minor ports. So this sort of private participation unless it happens in railways the connectivity is going to be a problem. Number one connectivity is very very important. It requires lot of expenditure from the government and it requires lot of changes in the systems and bringing in so many structures so that the private participation is coming unless this is done I'm sure the port alone with all the visions going from four times from current capacity to 10,000 million tons will be a problem in the long run.

Shri Subrat Tripathy: Fair point. Uh you know I often wonder uh the experiment of PPP in the country has been extremely you know kind of you know it's a virtuous cycle as far as the port sector is concerned the power sector is concerned somewhere the railways have not adopted PPP in the manner they should have so even last mile first mile connectivities even the Gati Shakti which has now come on one platform do you think the Gati Shakti should be entirely led by the PPP and private participation and also the fact that I think the country's money is precious to be diverted into something much more fundamental. I mean this is not the topic today but education and health continue to plague the country. Why would you not introduce and why why has the railways not been able to have a mindset of introducing more PPP into that? If I if you were to go back what would you do today?

Shri P. Raveendran: So it's not that railways didn't try any PPP. If you see over the years the freight cargo when it moves from one terminal to other terminal 70% of the cargo see traditionally we can't say that the private participation was not there in railways. In freight traffic, you know, the freight cargo movement about 70% goes from industry siding to industry siding. Those terminals already are privately owned and privately operated also. The only transportation and wagon supply was from the railways. But the problem is those people are already you know wedded to the railways and that is all coming on their own. The growth actually where it is not happening is the balance of other goods which requires a lot of terminals, aggregators and a person who will be giving customer focused solutions. There we need people to come in. The first railway tried to privatize and bring PPP operators in running trains. First experiment was containers and containers it was I mean it was welcomed by the industry very much and there are about 20 operators who came immediately and they bought container trains and started running but somehow the percentage of cargo by containers also has not increased road versus rail and there were other issues because the operator was still railways the operator licenser and the administrator all the roads were kept by railways that is the basic flaw in PPP with railways unless it is you know with the different authorities licenser operator and the administrator then it will be a problem. Now I would say there has been a lot of changes and thinking has gone in and the recent Gati Shakti policy for development of terminals has taken into account all the factors. I think a fairly good policy has come already. A lot of people are coming in. The only thing is, if you compare a PPP terminal in a port and a GCT terminal, it should be both more or less same because they have the same function. Trains come, they handle the cargo here, ships come, they handle the cargo there. Everything is taken into account on both sides and good things from the port sector have been copied there. But only thing is in port sector the land is given it is given that the land is given by the authority and the person brings money and invest create facility and operates but railway is not assuring even now unless that is done it will be a problem maybe if the railway is not having land it will be necessary for railway identify land and acquire and then start concessioning this development of this terminal I think certainly this will also come because these are the suggestions going to the ministry. It's only time that they take this also and developments will come.

Shri Subrat Tripathy: Thank you so much for a person who's practiced railways for a large part. Do you think that these suggestions can be very very? Let me tell the house and the distinguished panelists over here two of the very success stories in the ports about connectivity about Mundra. The fact that Mundra built its own connectivity actually took Mundra into a different trajectory at a time when connectivity to ports was the entire domain of railways. It was first time given and the success is there for everybody to see and the fact that the you know the revenues and the gains of this has accrued to trade and eventually to the country and the same has happened in Dhamra port in the state of Odisha where been very forthright in that concession. Thank you so much ma'am. I come to you knowing you have a very interesting morning session. Good to see you after Ahmedabad over here as well. Capacity building and the fact that where do you see I come back to the same question because I think women today are more concerned about capacity building. So it's incidental that both of you have got together. So the capacity building is in the hands of very powerful and good women. Give them a hand before I proceed with the question. Okay everyone's clapping not just the girls. Capacity building in the maritime sector along with the responsibility that we've been speaking about. Where do you think this leads us and what are the steps that we need to do to accelerate this? You know, we talked about isolated good examples. Why do we continue to not have a you know building these examples and proliferating them across many multiple small examples you being a part of a very extremely wonderful think tank having access to government having access to private being a wonderful bridge between that. What would you suggest are the steps to take to accelerate and grow these stories?

Dr. Vibha Dhawan: Capacity building and what we have seen in the state of Kerala or the countries which have done exceedingly well is that the basic education does wonders. It's not just learning a language. It's not anything else. It's everything that teaches us. And I tell my PhD students what you are learning as what you are doing in your research you may never use it. What you are basically learning as a PhD student is how to identify a problem, how to observe things and how do you use that for solving problems. Now coming to capacity building and that is something we continue all through our lives because really speaking what I learned in my PhD was not the end of research. So if I stop learning at that stage I don't think I can do anything. Now also let's look at what is happening today when we started and some of us perhaps will remember there used to be very strict disciplines. You choose which stream you want to in class 9 whether you want to opt for science, commerce, arts. So that is what the scenario was and with the result we had specialists in different fields. Today when we are talking about shipping as shipping and that is what I'll say how TERI came into play for this particular sector. It was because TERI has expertise in renewable energy. How do we use renewable energy? How do we use waste management? Those particular technologies in the shipping sector. So those we have to move away from silos because if I'm taking a particular action and we were talking about why we are moving away from railways to road it is largely the comfort factor and it is somewhere that the human labor is becoming more expensive and therefore there is no saving if I move to railways and ease is that okay I put it in truck it will be unloaded at its destination so that is the safest way that calls for a couple of things in capacity

building first of all or even the government policy. Should there be a carbon tax because ultimately if I'm driving a truck I'm causing more emissions and therefore over and above the transportation cost I should also pay carbon tax because ultimately I have to clean the environment. So that becomes a sort of thinking and therefore the person who is responsible for taking the decision how I should send my freight should also be sensitive towards the environment and that is where I say capacity building is not school it is not college education it's something which continues till the last day we should live and over there it is because now there are no silos I have to look in the shipping what are my emissions GHG emission and in the morning also I spoke about that even TERI's center we are looking at on time arrival of ships because you are saving energy let's look at the entire logistics because it takes long time and there are examples like when I started my career as a plant biotechnologist or rather what Safal is doing today they don't wait for the truck doesn't wait that everything is to be put in the shelves. They will come the following day. They have standardized the in crates and that is what needs to be done here as well. So that I save on labor. The entire logistics is to be worked out. So when I'm talking of green shipping, we are talking of green ports. It's everything right from my building design. It is efficient, energy efficient because energy saved is more than energy created because there will always be GHG emissions and how do I generate this? How do I recycle whatever even because solar panels and all you are using minerals there will be waste generated. So therefore I need to research what kind of uniform design should be there so that I recover the critical minerals because if the cost of recovery of critical minerals is higher than extraction cost I'll never learn. So that is what I'll have to work on. So therefore it has to continue and what I say is that what we have learned earlier we were saying whatever you have learned in college perhaps you'll use it all through your life but a decade before we were saying knowledge doubles every five years and today I'll say it's not even five months so therefore unless and until we keep on sharpening our skill set and it's at different levels at the higher level it is awareness about the technology. And then it is the level that the engineers who are coming out of the university need to skill them as well. They are not market ready. They have theoretical knowledge but not practical knowledge. So sort of finishing schools perhaps those are also required that we teach them. Very rightly mentioned and one initiative which has come into existence recently into existence is the professor of practice. So a lot of people with industry experience are returning back to the universities and they are mentoring students. So, which is very good and I think that the ecosystem now is developing because many people now they think give it back to society and really speaking they have a lot of money they don't care about money what they need is that whatever they have learned should be utilized. So therefore they are mentoring students. What we need to have is an open mind that every day we need to learn, we need to change according to the different needs today and we are living in a world where multidisciplinary is extremely important and I'll say I'm also one of the examples. I started my career as a plant biotechnologist then in molecular biology and genetically modified crops got into regulations of that. From there I moved to biofuels as biofuels there again we noticed that the lipid why it is not viable is because of the cost. So let's start looking into other platform chemicals that can come from the de-oiled cake and from there to microbes. So therefore it's a long journey but I kept my eyes and ears open. That is what is ultimately required and that's what I feel everyone should be doing. Thank you.

Shri Subrat Tripathy: I was aware that you are a very multiskilled person and you're only confirming that. Wonderful. Two points ma'am you know you talked about a green carbon tax you'd be aware that the road sector today has believed it has grown because of a very proactive action taken. You remember we all paid a cess when we bought fuel and that cess was actually fiscal capital to build the wonderful road network we had in the country. So that's one observation but there's a takeaway today. So if you are a net pollutant you pay for it. Exactly.

Dr. Vibha Dhawan: At that point of time at the turn of the century when we didn't have good roads that program was valid and was led by the prime minister himself was very you know very boldly called that. But today I think the responsibility of a carbon transition has to come on people who are adding to traffic. Interesting and you know small little things I'll just add to it where I feel government can play very important role like we have Bureau of Energy Efficiency and Bhakri was here a little while ago so Bureau of Energy Efficiency that gives you rating but you know the common person's question is why should I pay it is already I'm paying like okay I'll consume more electricity if it is two star rated versus five star rated but the differential is so high that I'm paying for 5 years electricity in advance. Why should I do it? So the government can also have a differential tax structure. So why can't the GST on energy efficient equipment be lowered? Similarly, when we are looking at the shipping sector, one of the problems is that the moment you go for greener fuel, there is going to be some differential. It's going to be a little expensive. Who pays it? Is it the company? Is it the consumer? And for a consumer, if you tell me that look at the particular thing that you are going to consume, the car has come through a ship which was green shipping versus something which came through an old technology but the differential is 30,000 rupees. I'll say how does it matter to me? So that should not be the case. So especially till the time these things are adopted till the time people are aware they're responsible enough till that time the government should also have differential policy give me rebate in income tax, don't give me cash money or anything reduce GST so there should be some incentive from the government as well.

Shri Subrat Tripathy: So innovative ideas to capture the sentiment of a citizen to kind of make the energy transition interesting but I'm also wary of lateral entry. I think Madam Malini said that lateral entry is something good not just from the private to the public sector vice versa. It's something that I think the country has suffered for too long from siloing sectors: major port non-major port, private non-private, TERI non-TERI. I think this artificial division should collapse but interesting. Thank you so much ma'am. On the cue, Ash Ji, to you. On the cue that we have, you know, madam spoke about energy transition and the necessity of taking the burden of energy transition by a kind of innovative taxation etc. I bring you to one of the goals of the MIV that the in the country in the ports is less than 10%. One of the goals of the MIV is to take it to beyond about close to 60% by 2030. At this point of time it looks fairly ambitious but nothing is unthinkable. Taking a cue from there, you know, as a responsibility of a citizen, as a member of the industry today, and as a member

of think tank with BCG. Where do you think and how should we proceed on this energy transition and what should we be doing in the maritime sector?

Shri Ashish Kulkarni: Yeah, I think Dr. Vibha really hit the nail with the innovation point. I think it's high time that we reimagine the way we used to think about programs, projects or anything in relation to all that we have done till now because we are running, we are actually sprinting in all aspects. If you look at just the hydrogen mission, green hydrogen mission, we have 17 ministries in it and if you think of the interventions which each of the ministry is today looking at and then the departments and then it comes to the state level and then it comes to the taluka and the district level, there are crazy number of interventions which are happening towards transition and bringing them all together if we are able to do it in a much more efficient way that's where we capture the value and the aspect is that you know if you look at the way we at least in BCG we look at frames and basically if you have to look at the supply and demand of green or anything in relation to bringing this entire ecosystem together. So if you look at the supply side then we do have policy, regulatory, technical, finance, capacity building and governance. So if you look at all these five you have a very good frame in which you can capture the maximum value out of all the aspects what we are doing. What is happening today is that you know we are trying to accelerate on one particular lever and that's something that you know is something which we are working with the ministry as well to understand where are the gaps and bring everything together so that and that's happening at the central level but the same thing if you look at a port authority like VOCPA that also needs to happen at the grassroots level where the implementation is happening until and unless all the five things are taken care of and then you integrate the offtake that is when I talk about the supply side but when we talk about the offtake side there also the need of integration of all stakeholders is required and when I mean by stakeholders it's just not the people who are going to use the product but also the service providers and the logistics people everyone needs to look at it from a perspective of bringing in that value bringing in that efficiency otherwise we will be looking at glaring gaps in these aspects and if you don't plug them at each level from a central to the implementation level from the policy level to the implementation level and across the whole value chain we will be missing out on a lot of value and I think I'll stop at that but this is what we are at least trying to do at all levels trying to get that aspect and importance needs to be given for of course capacity building but also on the governance aspect on understanding how bringing everything together can add value. Thank you.

Shri Subrat Tripathy: How do you trigger this? How do you incentivize this transition? What does BCG think about it as a strong adviser of the government?

Shri Ashish Kulkarni: I think bringing in, we are looking at platforms and everywhere India has got huge experience in adding value and getting value out of aggregating stuff. So demand aggregation is one place where the offtake can actually be very smooth. At the same time we have aggregated solar and we have blended solar and coal before with NVVN. We have blended the financing structures on platforms like NIIF which is 2 years old. We have prepared platforms wherein communities have come in and also taken care of the needs of the government and how

circularity can come in and other aspects as well. So we are very good at creating those platforms and I think the time has come that those platforms were created only for one particular lever. Now the need is that we create the platform for all five levers and then take it in a most comprehensive way and in the whole day we have not spoken about one very important thing that we are putting in money on the coast right on for all green hydrogen and we have to take care of climate risks at the same time and Dr. Subrat really mentioned about the earthquake which we just saw but if we don't take care of the vulnerability and adaptability and thanks to you, you mentioned twice and again about the mangroves and the work which you are doing on the ports but those are the most neglected aspects the adaptation and resilience are the most neglected aspects today. If we are not taking care of those then all the money which you put on the ports is somewhere it's at risk and somewhere that value will be depreciated if we don't take care of the climate risk.

Shri Subrat Tripathy: I thank you so much for flagging a very important aspect. You know, more than the earthquake, you know this coast was devastated in 2004 with a tsunami of a scale that you've never seen. I mean all of us remember the photographs of Chennai's Marina Beach over here. And the recent cyclone, not to talk of Fukushima, and of course Japan is more responsible towards that, still they could not contain that kind of thing. I'm not even talking about Chernobyl which is inland. So environmental management in the ports and participation of coastal communities and a sense from the government that you have to have protection around that. It's not just building a good port, it's making it resilient. Okay, if you were to say mark 1, 2, 3, what would you say is the path of resilience for the Indian ports.

Shri Ashish Kulkarni: No, I think you just started with climate risk assessments. It's very important we do all the feasibility studies. We do put money into various other things but a fraction of that if we do just start by making climate risk assessments today and we assess that you know in the next 20 years how is that I need to get what where are the risks when is that my value which I put on the port today is going to get affected that itself will give you a resilience plan and it involves communities it involves technical measures, it involves policy measures, it involves financing. So if you make that all resilient, then all the money which you put today will be there for the next 50 years. And that's why the only thing which I want to make before I leave and I would. I'm already getting FOMO because I'll be leaving this entire nice panel. But the only thing which I want to make a point is we have to look at it in a most comprehensive way of taking all the five levers and also build platforms wherein we bring in all the people together and wherein nobody loses and we capture the maximum value. I think I'll stop at that.

Shri Subrat Tripathy: I'll proceed with the questions here. Thank you so much. It was wonderful. I'll take off from where you said and I'll come to Karan Ji straight away there and you know energy transition we did speak about that a responsible port the levers that you'll apply to make a port on a virtuous cycle eventually we spoke in the morning about an ESG umbrella are the ports today conscious are they still on the path of a trajectory of just building infrastructure looking at the Sagarmala goals you know connectivity etc what is it that the eventual ports of India must look like

when you become assets in the world maritime map. How do we recast the glory that we once had and that was about certain amount you know we sitting in this land where the Cholas and the Pallavas went to conquer I come from a place where the Telugus went to do it in Southeast Asia put the history aside what is the future of Indian ports and you as a very young representative of the sector how do you feel about it and I would take the cue from the responsibility he talked about the levers and the ESG platform that I have been speaking about where does this take us.

Shri Karan Arora: Thanks a lot for this question and first of all let me admit I'm not from the ports. I'm not a ports guy. I'm more from the electron side but yes, as now you can see more and more electrons players are venturing into the molecular world and that's the same story for me. But for the larger audience just before I start responding to this question, GIZ is the German development corporation so more than 60 years already in India as a technical cooperation organization and mostly backed by government of Germany and ministries involved in Germany. And talking about our role in India from where I am coming from is the hydrogen ramp-up program where our partner ministry is Ministry of New and Renewable Energy and the one of the major milestone that was achieved was the Indo-German Green Hydrogen Roadmap which was exchanged last year during the visit of chancellor and also minister of economic affairs exchanged with Piyush Goyal and also mission director. So that was also in the TERI University, madam. So that was the backdrop and coming from the port's perspective as I admitted but what I have seen I have been to the Port of Rotterdam three times. The Ambassador was here. So what we have realized is that the ports are renting out space and a very strategic decision which was taken by the Port of Rotterdam also when MNRE had a booth there. We saw that over the years what has been the development they are strategically shifting their decisions whether they want fast money for renting for the container terminals and things like that or they are looking at allocating land for electrolyzers. Some of the world's largest or even in fact Europe's largest electrolyzers plants are being set up at the facility and do we have enough land allocation for transformers because we see a lot of offshore wind which also has the potential here where we are sitting. So do we have the evacuation facility from these ports? Do we have the right amount of transformers where these electrolyzers can be drawing power from? So these are the certain aspects and then we see that the first year we usually took a delegation. We stood outside a vacant electrolyser field nothing behind us actually but we used to say that you know tomorrow there is going to be an electrolyser because there's a lot of Shell British Petroleum refineries out there but last year this year in May 2025 we see that it's mostly done and this year we will see that the electrolyser will actually be producing hydrogen which is going directly to these refineries. Having said that in the Green Hydrogen Roadmap the ESG framework that you talked about we also have a KfW development bank which is the German technical financial corporation we being the technical corporation there is the financial corporation and one of the reasons why most of the there was a viability gap fund for also for the maritime fuels for the fuel producers of 30 million euros per project a total capping of 270 million euros and 30 million euros dedicated only towards bridging this gap between gray and green. The main aspect of Indian companies losing out was on the aspect of ESG. So we saw that this aspect was kind of not ready but now we see there was a second round which was March 2025 and the

results are expected soon and we are very fingers crossed we are very hopeful a lot of maybe some developers are also sitting here have participated in that round and we see that yes there will be access to these VGF funding instruments where the one of the aspects is having an ESIA framework in place because even the IMO net zero framework the funds that are going to be coming because of these penalties and levies of compliance and direct targets and base targets most of it is going towards just transition and complying with the ESIA framework. So that has been our observation so far. But yes, an exciting field and a lot of interesting personally for me to learn a lot and that has been a really great experience.

Shri Subrat Tripathy: Yeah. So you also believe and echo the sentiment that the transition to green cannot be without crossing or breaching the borders of ESG and any kind of financing. This is something that I have been telling everyone from a perspective of non-major ports, which I have been telling everyone having worked in major ports for long, having now been subjected to the scrutiny of financing and going through the very careful diligence and scrutiny for ESG funding. I think I'm very happy to echo the sentiment that you are saying but equally happy to see that Indian companies are now waking up to that because you can't breach the ESG factor anymore in India if you wish to look for technology. But tell me, having gone to expressions based in English, so then you know that's how do you think about the many ambitions that India has and we talked about the hydrogen mission our visibility to a certain kind of getting the optics in our favor by the fifth hydrogen conference. Could India be a net supplier of energy in the future for the world and what could that energy be though this panel does feel we don't even know what the energy could be. We know for sure today India's energy needs come from and ports are a very vital part of that linkage in terms of let's say Tamil Nadu for example you know coastal coal that comes in from the state I come from Odisha and we've been working on that. So coal is a story for another 20-25 years unless we are doing coal to gasification and we're taking up extracting minerals etc. I mean extracting liquids and you know could India be a net supplier of that energy when it does happen what's your view.

Shri Karan Arora: My perspective would be yes and why I'm saying this is you know there is a subsidiary of Germany which is HINT.CO and HINT.CO has done you know rounds of global tenders where they are because they want to import ammonia, import SAF, methanol and the reason India could produce the cheapest electrons in the world. You know that is in itself you know a game changer as far as this transition is concerned and all eyes go to India because of the fact that we have the one grid, the one bidding zone concept is being taken care of because this is one area that EU RFNBO these are some technical things which are required for them to make them understand that yes a plant in south of India can draw power from Gujarat because we are one grid and we are trying to answer this you know address this question because in India we have different bidding areas. I will not get into these details but this will be resolved at the EU-India level I'm very sure but what I can say is the HINT.CO has done road shows in India they have signed you know with SECI so they are looking at Asia-specific windows, global windows where Indian companies are participating and all eyes are looking at India and we are the elephant in the room and I have a very strong feeling I

invested my career coming from electrons to molecular world personally I want this to be a successful story and I'm sure it will be.

Shri Subrat Tripathy: What according to you could be the trigger? What could it be: hydrogen, methanol, or as Malini believes, that's something that we don't even know, extraterrestrial perhaps.

Dr. Vibha Dhawan: Well, I'll put it this way. We are living in a very very dynamic world. Energy transition is going to take place. It's going to continue for at least the next 50 years. When I talk of energy transition, it's basically that our energy needs are going to go up. There is awareness about green energy. Now to say whether India will be a net exporter in terms of potential, I'll say yes. But then what I'll also be conscious of and as the research efforts are going on, I also have a feeling that every part of the world will find some or the other alternative whether it's going to be nuclear whether it is going to be hydrogen and therefore in years to come maybe energy export may not be there and every country will be producing their own which kind of energy that we'll have to see and this transition at least will take minimum of 50 maybe 50 to 70 years kind of space.

Shri Subrat Tripathy: I'm hopeful that maybe in our lifetime we see an energy transition. Ma'am, you're young enough to see that. Don't you worry. So very fascinating, you know. So much for the port sector, you know. Uh I began by, you know, requesting ma'am Malini something on the shipping sector. I'd like to come back once again to the shipping sector. Subramanyam Ji to you. You know not despite uh you know there's a we I'm sure this is true for all the port operators they understand terminals and ports very little understanding of the shipping as it were you know various dynamics the fact that Indian flag itself is so restricted and the fact that one of the MIV visions is to see that our gross tonnage in the world is what just about 6 today and we have a desire to take it to more than 35 so you're well on the figures how do we achieve that is it physical capital is it policy framework and when we go forward and I would like you to elaborate on insurance and classification because that's another very tricky subject that we're getting into as port operators you know we say that are you compliant do you got the insurance from you know classification it's all good way no chairman will think of it because these limitations are there I'd like to ask you how do you perceive this and first on the tonnage and what is it in the shipping sector we need to do to set that more tonnage more Indian flag more Indian crew.

Shri Subramanya Kanakatte: Thanks for the challenging question, as this topic has been discussed for years. The tonnage increase depends on operators' strategies to enhance the ecosystem, improve transport, exports, and integration. Achieving this requires significant capital investment, considering the product type and market demand. Many factors need evaluation before increasing from an average of 15, as you mentioned, to 35, which hasn't happened in the last 10-15 years.

On the classification perspective, it's very tedious due to IMO regulations, especially in the green sector. I work with RINA, an Italian classification company, collaborating with developers, shipbuilders, and the IMO directly. For green energy, like ammonia and methanol, we've been

developing classification policies and technical advancements for the IMO over the past four years, involving ship owners. In September, we'll present to the IMO, outlining the pros and cons of energy transitions like methanol, ammonia, or hydrogen. We're also addressing the CII (Carbon Intensity Indicator) level, with automation to detect CII for existing ships. From an insurance perspective, higher investments increase premiums, but green energy transitions require this. Long-term ship transitions for green energy are still underdeveloped. For instance, methanol storage is 2.5 times larger than HFO, and green ammonia requires six times more space, raising CAPEX costs and insurance premiums.

These discrepancies-technical issues from shipbuilders, IMO regulations, and insurance-have created a vicious circle for three to four years. Regarding P&I clubs, I don't see much fortune in the near future. The transition should focus on smaller vessels like tugboats and passenger carriers, which are already operational in places like Rotterdam. On Monday, I was in Oman, where the Duqm port is exploring green energy concepts. Methanol is viable in the immediate future, while ammonia might be feasible around 2025, pending safety outcomes from the CC11 conference this year. That's a key potential to watch.

Shri Subrat Tripathy: The energy transition's risk mapping hasn't been discussed much. We're still at the development stage, far from maturity where risk management, financing, and similar topics take center stage-it's essentially R&D. This morning, a question was raised about why we aren't focusing on a proven nuclear transition, given that navies worldwide power nuclear submarines capable of extended underwater operation. How do you view this?

Shri Subramanya Kanakatte: Personally, I don't see nuclear as a viable option due to its unique management challenges. Military applications operate on a different platform, but for civilians, health and safety on board are major concerns, along with ensuring a healthier environment. Premium pricing is always a factor, as seen with HFO over the past 15 years, and we're still managing that. Achieving even a 15% transition of global requirements to new, advanced, or green fuels would be a significant milestone, given the many concerns and constraints in development.

Regarding piggybacking on LNG for a while, we've had LNG for a couple of years, but boil-off gas (BOG) management remains an issue. If BOG management is resolved, LNG could definitely be a key option to consider.

Shri Subrat Tripathy: Ladies and gentlemen, is there a quick intervention or question from anyone?

Audience: The long-term prospects for methanol, ammonia, green hydrogen, and nuclear, as you've outlined, are very attractive. However, since we need to focus on the short term for practical progress, we can't look at a 10- or 15-year timeframe. We need to consider what will happen in the next five years. The second question is about financing this green transition. The government has allocated only ₹20,000 crores, which is insufficient for the transition. Private industry seems

reluctant to invest significantly. So, how will this transition happen, and what will the future look like?

Shri Subrat Tripathy: Let me address your concerns and clear any confusion. I don't think the audience is overly confused, but I'll respond to your question. It's not just about a short-term strategy; it's about having a clear outlook and charting a path forward. The long-term trajectory for the maritime industry is clear, though it will face hiccups due to the R&D nature of this transition and the critical issue of financing. There's been much discussion, including a valuable session on financing the green transition. The future path is well-defined for all of us here and in the audience. As we progress, uncertainties remain-whether methanol, hydrogen, ammonia, or other forms of hydrogen will dominate. I also raised whether India could become a net producer and exporter, especially since we can commercially produce these fuels at a lower cost than much of the world. These are opportunities, not confusions. The trajectory is set, and the transition is acknowledged; how we proceed will unfold in due course. We'll wait for that.

Dr. Malini Shankar: What people are seeking is a game-changer, like mobile phones and Reliance in India, which relied on massive volumes. While focusing on shipping and ports, can we expand beyond just seagoing and coastal ships to include fishing boats? With around 400,000 fishing boats, leveraging those volumes could foster a game-changing approach. This could develop an ecosystem where the technology is tested and refined. Focusing solely on seagoing ships in silos may be limiting.

Shri Subrat Tripathy: You're absolutely right, ma'am, about the challenges citizens faced, like the transition in Delhi from one fuel type to CNG. Every transition brings some pain and requires acceptance. You correctly pointed out that small fishing vessels, both registered and unregistered, represent huge numbers. If we can propel them to adopt alternative fuels and make it cost-effective, that's where trials and tribulations can happen. You can't easily test on larger vessels. As a general student of science, I recall the historical debate between DC and AC current-whether Tesla's approach or another form of energy transmission was right. That debate persists, but commercializing R&D and proliferating it will accelerate progress. The numbers lie in fishing vessels and smaller crafts, not just large ships. For those who've lived in Delhi, we've seen the shift to CNG, and now it's well-established. Anyway, this has been an exciting panel. I request the house to stand and give a round of applause to everyone here.
