

23 January 2024

CIHT Dubai Online Seminar – Bulletin

SPEAKERS:

Farah Naz, Arun Krishnan, Bruce Haldors, Stephen Wilkinson

About the Event

The Conference of Parties (COP) is the major event discussing decarbonisation of industries towards net zero in 2050. During COP28 there were a few major announcements in relation to transportation. There was a call to action to double the share of energy efficient and fossil-free forms of land transport by 2030. There was also a move to increase the use of nature-based solutions in infrastructure design.

On the side-lines of COP28 there were key discussions in relation to improving the climate resilience of infrastructure, as part of adaptation to climate change. There were further discussions on sustainable fuels in aviation and shipping and how these can be incorporated into current infrastructure.

Hydrogen was advanced at many meetings as a potential solution, and other green technologies were highlighted as developing. This continuing the theme that new technologies may be developed which will support the sector to meet its net zero targets.

During this CIHT seminar, the expert panel unpacked the key elements from COP28 and their implications for the transport sector.

About the Panel Speakers

Farah Naz :- Farah is an award-winning climate change strategist, Zayed Inspirer and Authored Middle East Regions first book on NetZero titled “Net Zero City”. She has 20 years’ experience in the built environment gained in the US, UK, Southeast Asia and most recently the Gulf Region.

Arun Krishnan :- Arun Krishnan leads the India regional program of the Global Innovation Lab in Climate Finance (the Lab) of Climate Policy Initiative. The Lab is an investor-led, public-private initiative that accelerates innovative well designed, early-stage climate finance solutions and instruments.

Bruce Haldors :- Bruce Haldors is the CEO of Transpo Group he has over 30 years of experience on transportation projects throughout the US and in the MENA region. He is presently serving on the Transportation Research Board’s Committee on Artificial Intelligence and Advanced Computing.

Panel Moderator :- Stephen Wilkinson Director of Research at University of Wollongong in Dubai.

Panel Discussion

Richard Lewis the vice chair of CIHT Dubai opened the meeting welcoming everyone to the event.

Stephen introduced the panel members and the main focus of the event around the future sustainability of the transport industry. Then he asked the first question which was for each panel member to introduce themselves and their interest in sustainability and to state what they think is the most important thing to come out of cop 28, and what the direction of the transport sector will be over the next 26 years.

Farah was the 1st to answer the question. As a consultant for COP28, was very exciting to see the event, especially the discussion of the energy transportation nexus, and the road transport breakthrough roundtable, and the discussion around the tax on aviation fuel. In addition, the launch of the UAE net zero long-term strategy which was launched on 8 January. This long-term strategy highlights the path of decarbonisation including transport within the UAE.

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Stephen noted that **Farah** was part of the design of the Sustainability Terra Pavilion at Expo city, and how good it was that the site was being reused for another major event

Farah discussed the legacy usage of the Sustainability Pavilion, and part of the planning of a carbon neutral cop 28 as an extension of the work that was carried out on the sustainability Pavillion

Arun discussed the climate policy initiative and its impact on climate finance. Out of \$1.2 trillion, \$350 billion was transport, which is the second most significant sector of the energy. He also discussed the cities for climate finance leadership alliance, focusing on cities and their transport. His main takeaways from COP28, was the headline transition away from fossil fuels including renewable energy (mature technologies). But also including the strong potential of the transport sector for decarbonisation. Two thirds of NDC's refer to public transport, but only 20% of them have quantifiable goals, and only 20% of those include modal shift. He highlighted the importance of modal shift particularly in terms of transport efficiency. The transport sector is responsible for 20% of global emissions, and these emissions have not declined in the last 15 years, primarily due to population growth, and increased car ownership. It mentioned the potential of policies to reduce car ownership. In addition, the strong potential for coastal electric ships. Hydrogen is still early in its technological development and challenging to develop. There is also a risk of not using green hydrogen, with more black, grey and brown hydrogen being used.



Bruce discussed his 30 years experience of the industry, and that the short time that we have to reach net zero will go awfully fast. He mentioned his excitement around public-private partnerships in approaching challenges around sustainability. Working between the public and private sector on a common goal has strong potential. Many corporations were brought together during COP28 in order to contribute towards solving this challenge. Modal shift is particularly important, especially in cities. Novel technologies such as electrification and hydrogen, and carbon reduction within power systems is essential.

Stephen mentioned the two major events during cop, the movements to double the share of energy efficient and fossil fuel free forms of land transport by 2030, and the agreement to reach net zero carbon in global freight transport. For the first one the international energy agency has been promoting the shift towards electric vehicles, as one of the major achievements globally, which is primarily driven by China. Stephen asked what is the next steps which needs to be made in order to achieve these goals, and what is required during cop 29 in order to push forward this agenda.

Farah discussed the systems thinking approach and why it is important to solving climate problems. Co-creation is essential in order to create an action plan and then delivery of the project. It is essential that technology in climate finance and technology come together in order to generate a vision of new cities. Discussions of sustainability often focus on energy, but energy, transportation, land use, density all has to come together and collaborate in order to address climate problems. Working together, and learning lessons from around the world will allow us to find the path forward. Climate change is a global problem, and we have to think collaboratively.

Stephen drew out the comments around climate finance and technology coming together and the importance of knowledge transfer, and asked Aaron to discuss climate finance in relation to knowledge transfer agreements. There is a huge amount of infrastructure development which is going on around the world which is supporting the achievement of sustainable development goals. Infrastructure development is essential in achieving these sustainable development goals.

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Arun first spoke about the issue of global freight. COVID taught us that supply chains need to be resilient. Shipping is easily disrupted. Perhaps we should move away from the globalisation model, and move towards more local consumption. This will be the easiest way to reduce the carbon emissions from global freight. China leads the way in zero emission trucking, with a huge fleet of electric trucks. Closed loop routes are easier to decarbonise, as charging infrastructure can be easily planned, open routes are more challenging. Hydrogen in trucks, including combustion and hydrogen fuel cells are under development. Swappable batteries are being developed well in China. Rail freight is an important element of decarbonisation, as a very low carbon emissions transport option. Looking at the global freight sector as a whole, some elements can be electrified, and hydrogen is an option, but localism will have the largest impact.

There is a long way to go for knowledge transfer and climate finance. New instruments are being developed, and the World Bank is playing an important role. The main challenge in climate finance relates to the immaturity of the technology. Products often rapidly devalue where technology is rapidly developing. In India the government set a target to acquire 7000 electric busses then encouraged a public-private bidding process to run the busses, this was successful. Then there was an expansion of vision to 50,000 busses announced in 50,000.

Stephen discussed the development of technology for financial instruments. The future of electric vehicles hydrogen vehicles and sustainable fuels, and the rate of technological development, and the rate of infrastructure rollout. You mentioned the length of the journey that is required in order to reach where you want to be by 2050. He asked Bruce to comment on the technological development and the rate of change that will be required in order to achieve this in 26 years.

Bruce highlighted the key things in the rate of innovation, is the learning that you make from failures more than you make from successes. The key in technology is some of the incentives and the legislation which enables the speed of testing of technologies in the transport sector. There has been some progress by using tax credits to speed up adoption of technologies. But there is also fear and doubt which is imposed by the media which slows down the uptake of novel technologies. The key thing is technologies are evolving, and they are not perfect when they are first adopted. Technology plays a critical role in allowing us to decarbonise our economy's. AI is the key concept of the day and so many companies are trying to implement AI. There is a particular emphasis on the use of AI within transport. AI has a particular use in enhancing the efficiency of systems particularly using data analysis. Systems and engine applications which are enabled by AI will realise huge efficiencies. Localising the use of resources really does make a lot more sense rather than the transport across the world. Carbon taxes have made a huge amount of revenue; however, this becomes most effective where these taxes are reinvested in research in order to speed up the rate of development. The technology curve is so steep and the potential is so exciting, that has to be a way to use incentives to realise this sooner.

Stephen discussed the ideas around the industrial revolutions, and that before that the sustainability revolution would be the next revolution, but the AI revolution has come a long. He asked will AI support with sustainability, or will be AI revolution hinder the achievement of sustainability because of its energy consumption or the ways in which it drives us.

Bruce there are some challenges around AI particularly the energy consumption of the cloud. However, the advantages of a high unlikely to enhance the sustainability revolution because of the speed of development and the efficiencies that can be realised by using AI.

Farah we have been looking at AI from an engineering perspective particularly because people concerned that AI might take jobs from humans. The consensus was that it is not AI that will take jobs of humans, it is the humans that know how to use AI which will take the jobs of other humans. Looking at the sustainability side of things, there will be significant changes in the climates of various countries particularly Saudi Arabia will become more wet, whereas France Italy will become much hotter and more arid. AI allowances to carry out large-scale model's facilities in order to predict what the city's future climate scenario will be, this also allows the development of strategies of

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financial models.

In addition, the UAE has released its strategy for net zero (<https://unfccc.int/documents/636722>), it talks by reducing transport emissions by 1% by 2030, 40% by 2040, then 100% by 2050. AI can be of huge benefit in optimising the decisions of how to reach net zero. There is a lot of conversation on the built environment and buildings, but transport carbon emissions are rarely asked for from clients. This is an extra service that should be provided to clients to show the carbon emissions impact of client's decisions. Carbon emissions are not just changed by technology, but also their integration with infrastructure.

A short while ago there was a study, where the city was looking to implement electric vehicles. The study was looking at the social impact of the implementation of electric vehicles within the city. And the implementation of charging infrastructure had a huge impact on the city. The reason technology is a challenge is there is not enough data in order to understand why things go wrong or why they do not progress fast enough. We have been discussing hydrogen technology for many years, but we do not have the data for why this technology has not progressed. Whereas solar panels have greatly decreased in price and they have revolutionised the industry. We need proof of concepts and data to give investors peace of mind as to why they should invest into novel technology. The built environment there is a massive bonus alliance which needs to be created in order to promote funding of sustainable technologies.

Copenhagen created the Copenhagen 2025 plan, wanting to be net zero. Last year the mayor of Copenhagen announced that net zero could not be achieved. However, a study showed that the city did incredibly well there was a 90% consumption decrease in energy in the built environment. There was success in agriculture, but the failure was in the transport sector. Transportation carbon emissions went up, primarily because people drive to the city. The data that was collected is the most important element of this story as this the world to see what can be achieved, and what needs to be worked on. Perhaps other cities can look at this and see the options that they could implement in other areas of the world.

Local consumption is also very important. At the end of the day ownership and mindset is very important. Individuals in the home and in their workplaces must live in the same way as they state in their reports. The public should have ownership of their decisions. There should be a pride in individual actions making a difference. Previously there's been a focus that governments and scientists should solve the climate issues, but there should be more focus on the individual.

Stephen discussed individual actions being very important. There is an issue in relation to recycling, so many people think that if they have recycled then they have done all they need to in order to be sustainable, but there is a lot more. Stephen emphasised the long-term strategy of the UAE, and how amazing this country is in its ability to see a vision of the future and develop a long-term plan for the country. Stephen asked Farah in order to draw out some key points from the long-term strategy, and how the UAE will change as this strategy is implemented.

Farah what the UAE has done brilliantly is announcing 2019 as the base year calculations, this is the third largest carbon emissions, but it is announced reductions of 1% by 2030, 40% by 2040, then 100% by 2050. The strategy includes implementation plans, the policies and the incentivisation strategies in order to reach net zero. Many Emirates are looking at local transportation, cycling, walking and 15 minutes cities. There are been some major sustainability revolutions within the UAE, plastic waste and water. We need a similar revolution for carbon, creating a mindset for shifting away from carbon consumption. We need to change our lifestyles in a positive and impactful way.

Stephen mentioned thinking about the UAE 10 years ago, and thinking about the UAE today, and the rate of change that has occurred during these 10 years, it gives great confidence when you see the ambition within these long-term strategies. Stephen asked Aaron about investments in novel technologies. He asked how would you explain to investor who wants to get into climate finance which novel technologies should be invested in. How to build the confidence and get investors to make the first investment in order to push the technology forward

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Arun there is a key element which is called the value of debt. This is the leap of faith which separates the laboratory and the markets. There are often financial instruments which want to solve climate problems. The biggest problem is that universities cannot commercialise their technologies. We want to bring in venture capital, and we want to bring in partners for investment. The scaling of these funds is a challenge, this requires governments or larger companies in order to increase the size the funding pot. Experimental technologies are a portfolio play, maybe one or two in a hundred are successful, but the few that is successful brings a very large return. It is difficult for small funds to be able to realise returns from this. But governments can achieve this using viability gap funding, or on a lost leadership basis. There is a GDP or economic multiplier from investment in these systems.

Stephen asked the final question, thinking about the next COP and the future of this discussion, what is one key area which needs to be part of the discussion in the future.

Bruce the most important thing is finding ways to incentivise and enable collaboration between the public and private sectors. The application of technology and AI has its virtues, it cannot be unleashed unless there is appropriate incentives and bounties which can push these initiatives forward. Allowing us to test all the solutions we might get close to net zero

Arun more specific funding, and a larger funding of for adaptation, for transport, and for commercialising technology. Funding both start-ups and novel technologies for climate action.

Farah would like to see each emission source good case studies. Where there is a clear commitment, a clear action, and a clear result.

Stephen emphasised the need to see data from failures even more than the data from successes.

Questions

A modal shift to public transit sounds like a great solution, but how do you create a public transport system that is desirable and attracts new riders?

There are lots of countries and cities where a metro or bus system is a low hanging fruit which has not happen yet. Taking the example of the Delhi Metro system, it had a huge impact on the city. Cities that currently do not have public transport infrastructure need to implement this. There is of course an issue in relation to last mile connectivity, and this should be part of the planning, but it should not stop the development of public transport systems.

We need to rethink our approach to transport systems. The thinking that designed our current cities, will struggle to redesign our cities. There is a lot that AI can offer, especially where there is data available for the AI. We must be more agile to be able to change our policies in order to adopt approaches which have been successful in other countries and cities.

Is there a danger that the success of car EVs means less of a focus on modal shift, reducing the use of cars and using PT, walking and cycling?

Cities should be designed to promote PT, walking and cycling. If we plan cities correctly then driving should not be required for all journeys. The need for travel can be reduced by good planning. Planning can promote active modes of transport and there are huge benefits to this. The population in Dubai is almost the same as 10 years ago, but the demand on the road is higher, as design focal points are missing, or require driving as they are so far spaced out. It is impossible for workers to achieved things during their lunch hour without driving, and this is an issue of city planning and design which can be resolved.

If all cars are EVs and zero emission, then why get out of the car and into transit?

Some people cannot drive or do not enjoy driving. But also, if everyone remains in their car then there will be too much traffic. This is another element of the modal shift, the more people who move to public transport more efficient the road infrastructure will be.