



Systems thinking in infrastructure

KPMG ESG Voices podcast

Host

Hello and welcome to KPMG's ESG voices podcast, the series that takes a deep dive into the opportunities and challenges of ESG and what it means for businesses and communities through interviews with specialists from KPMG and beyond. Throughout the series, we will discuss a broad range of issues around sustainability and regeneration, aiming to support businesses and communities in creating an equitable and prosperous future for all.

Today's episode is one of a series of special episodes focusing on infrastructure and the built environment. We know that society cannot function without water, transport and energy networks, nor can it function without the buildings we live and work in. So in the following episodes, we are bringing some outstanding specialists together to explore what state, ability and regeneration mean for infrastructure and what that means for us.

In today's episode we are joined by Janet Greenwood, Global Lead for Sustainable Infrastructure at KPMG International, who will be speaking with Pooran Desai, Founder of One Planet, and Caitlin Keating, Partner in Planning & Infrastructure Economics at KPMG in Australia.

Janet, over to you.

Janet Greenwood

Today's episode is all about systems thinking. We know that downstream floods are influenced by upstream land management practices. We know that hospitals cannot function without water, and we know that our transport systems grind to a halt without power for traffic lights and signalling. Yet still, we plan and budget in silos.

So here to unpack what systems thinking could mean for infrastructure I'm delighted to say I'm joined by Pooran Desai of OnePlanet and Caitlin Keating of KPMG Australia. Pooran is founder of OnePlanet, past winner of European Social Entrepreneur of the year and a serial innovator. Pooran has set up enterprises in sustainable forestry, farming and recycling and put together the first Zero Carbon Village, BedZED, in South London. He created OnePlanet Living, on which the United Nations Sustainable Development Goals is based. Caitlin is a partner in the Planning and Infrastructure Economics team within KPMG's infrastructure, Assets and Places division in Australia. She has played a critical role across many urban development and infrastructure projects in Victoria. Prior to joining KPMG, Caitlin held a number of senior roles across state government.

Pooran turning to you first. Can you tell me a little bit about your work and OnePlanet?

Pooran Desai

Thank you very much, Janet, for inviting me on this podcast. So OnePlanet is a technology platform, which really helps people join the dots. You mentioned, of course, that we are all tending to work in silos and absolutely all the key challenges we face are because we are not thinking in a joined-up way in an interconnected way. And in fact, my background is in neuroscience, and medical sciences, and my work has brought me full circle. So although I've worked mainly in sustainability in my life. It's really the latest neuroscience is telling us that to solve complex, interconnected problems, we have to use a different part of our brain, a completely different way of understanding how reality works. I know that sounds challenging, but that's the paradigm shift we need.

Janet Greenwood

Pooran, thank you. And Caitlin for that broader approach, that systemic approach. Tell me a little bit about how that relates to your work.

Caitlin Keating

Thanks, Janet. And like Pooran and I'm really excited to be here today and chatting to you both. I think the systems of approach that underpins what makes a place a liveable and flourishing place to be is what we really need to unpack when we're planning for our infrastructure, for our built environment, but also for how we think about our natural environment and how we protect and maintain it over time. So here in our team in Australia, where I sit within a division that's called Infrastructure Assets and Places, we bring together specialists that have all different kinds of backgrounds. So it could be geographers, it could be economists, it could be transport modellers. We bring all those great minds together to help us think about place in a systems construct. So what are all these different, complex problems, that kind of wind together to make the places that we live, work, and recreate in on a daily basis. And how can we plan for them, recognizing that they're really an ecosystem that is very interconnected, just as Pooran said, like these systems are so, intertwined and there's so many different influences. They're so complex. How do we think about them in a way that is appropriate for that complexity?

Janet Greenwood

And, Caitlin, can you elaborate on what some of those strands are? What comes together in place?

Caitlin Keating

Absolutely. So when we think about place, and I guess I come from a background of working in government, it can be really easy to think about it in the silos that drives the structures of our government departments in many of the countries that we're all coming from. And I suppose what we're trying to do is join the dots between those. So we're not just thinking about a train line, or we're not just thinking about a housing development, or we're not just thinking about a waterway — it's how do all those things influence and impact each other? So when we build a train line, what impact will that have on the precincts that surround the station? Who will choose to live there? Who will choose to set up their business there? What will it feel like when you're there? How does the urban design impact the quality of your day when you walk through that particular space?

So it's all these different things that are coming together, in different ways, in every place, in every city that give it that unique identity. So being able to think about all those things and how they interact with each other is really critical to creating the outcomes around places that people want to be on a daily basis.

Janet Greenwood

Thank you, Caitlin. And yes, in the discussions that I have with people, I often get the impression that people feel a little overwhelmed when they're asked to think beyond a single silo or a single sort of sector, and it can become confusing. And Pooran is that something that you've discovered, and is that something that that OnePlanet addresses?

Pooran Desai

Yeah, it's a very interesting question, and I'm going to go back to the neuroscience on this, if I may, Janet. The left half the brain really focuses on the detail, okay, and almost all our education turns us into specialists. But that half of the brain literally cannot see the big picture. So, that part of the brain may know what a leg is, what an arm is, what a head is. If you ask that half of the brain to put it together, it might stick the leg on top of the head. It doesn't know it's got it wrong. And worse than that, you can't persuade it, it's got it wrong. And there's something very fundamental about that in that, reality is not made up of the parts that we talk about. There's not health over here, there's not climate over there, there's not jobs in a third place. That the left half of the brain's way of looking at reality. And it makes life very complicated, and it makes it impossible for us to solve complex problems by getting more into the detail.

So when we start using another part of brain which can look at the bigger picture, we actually see the world as an indivisible, interconnected, whole. Interconnected is actually not strong enough, it's actually indivisible. Interconnected suggests that there are parts that make up the world, and that we can understand the whole by understanding the parts. That turns out to be literally what neuroscientists are calling a deluded relationship to reality, and this is something which has been really developed, you know, it's become very, predominant in Western culture over 300 years. And, in fact, we can't think about complexity. So that's why I call it reimagining. We actually have to step back, see the world as an interconnected whole, see ourselves actually as indivisible

from our communities, from our economies, from a living planet. And, I mean, I would go as far as to say from a single living universe.

Now, how do we work with that? It's actually very easy. What we what we can do is think about, okay, how do we really want to live? What are the outcomes we want to achieve? I'm guessing we want to be healthier, we want to live in healthy communities, we want to have healthy local economies, and we want to have a healthy planet. Now, when we get to that level, life becomes a thousand times simpler, you know? So if we start by saying, oh, let's develop our economy, and become globally competitive and then we'll be able to solve problems around health or environment. It won't work. That invisible hand doesn't steer us in that direction anymore because of the way we create money, our economic systems, the way capitalism is now working.

So let's take a step back and just really have a very simple conversation. How do we want to live? And how can we promote our health, the health of our communities, the health of our local economy and the health of our planet? And life becomes, as I say, a thousand times simpler.

Janet Greenwood

And there's a paradox there, isn't there? By addressing the complexity, actually, you can strip away some of the confusion.

Pooran Desai

Absolutely. So when we look at the detail things become very complicated. When we look at the big picture we see complexity, but that is actually much simpler to work with.

Janet Greenwood

And Caitlyn, does that resonate with some of the work that you've done, some of the place-based work in Victoria?

Caitlin Keating

It absolutely does. It's been a really eloquent way of describing why some of the jobs have been so hard for us. People are like looking into the detail and getting overwhelmed, but actually stepping back and looking at it from a strategic level can help you to manage all those complexities that are coming at you. I think, there are projects we've worked on here in Australia that are really kind of landmark, unprecedented, investments in infrastructure that are going to change the shape of some of our major cities. And when you are at step one of one of those projects, it can sometimes just feel like an avalanche coming at you of, of like, how on earth are we going to put together a concise, compelling, coherent sort of business case for something of this size and scale? And I think Pooran has kind of summed it up well, that you do need to be able to step back and just see the complexity in a simple way to enable you to take that first step.

Janet Greenwood

And in the UK, we are now seeing a move to place-based business cases, which is really exciting, where you take a much more holistic view of the benefits of a number of interventions.

You look at their interfaces, their dependencies. I think it really is to be welcomed.

So, Caitlin, tell me about the practice of infrastructure assets and places.

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Caitlin Keating

Thanks, Janet. It's actually a pretty unique way, of organising a division, at a KPMG firm. So here in Australia, there was a recognition that our clients were looking for services all across the infrastructure and place life cycle, whether that's, when projects are a twinkle in the eye, at the sort of policy and strategy stage, whether they're around procurement, whether it could be, technical or engineering aspects or whether you're down doing operations, asset management and project delivery. So taking the systems thinking approach, our division was born and it enables us to really draw on insights from all across that lifecycle and really effectively and efficiently bring them to our clients. So typically those things might happen in very different firms and it would take you time. And I suppose a lot of effort to bring those insights together. So it's great to be able to have the full lifecycle set of services in one place. And it means that we can develop really deep and trusted relationships with our clients along the lifecycle, of their projects and be there from, I guess day one to when that project comes to fruition and it is achieving the outcomes that they, had set out to achieve at the start.

Janet Greenwood

Thank you. So it's a using a systems approach to deliver a systems approach.

Caitlin Keating

Absolutely. I love that.

And so Caitlin, what does good look like when you're working with a client? Pooran mentioned about sort of that ambition, that clarity of a vision about where we want to get to. But what does good look like for you?

Caitlin Keating

I think, the very foundation of creating something that's good, is recognizing that any one particular client or any one particular organization or government agency doesn't have the answers. So being able to recognize that you need a lot of voices around the table for some of these place based outcomes to come to life.

So it means an investment of effort and time because it's not easy, really, to bring together views that can be often, in conflict with one another, or there are tensions between achieving some outcomes in the construct of a place as opposed to others. So, I guess, we need to be able to come around the table and respectfully be able to listen to each other's perspectives and agree on what that shared vision is for the place at the outset. Because if we don't have that shared vision across all the actors or stakeholders in the particular kind of investment or problem that we're contemplating, it's very hard to get past that first step. So, at its very base, it's kind of an inter-personal activity that needs to happen.

Janet Greenwood

And Pooran that seems to take us back to humans, to neuroscience.

Pooran Desai

Yeah. I completely concur with Caitlin on that. For me, it's very much about a conversation and an authentic one. And so when we were unlocking our OnePlanet Living project around the world, and we unlocked about 30 billion USD of zero carbon development around the world.

What we always started with was actually a very personal conversation with everyone involved in the project. So what I always used to start with was, you know, just bring along a small object which represents sustainability to you and just talk about you and your relationship to sustainability. You know, we might talk about it now as a regenerative future or whatever, or a better future.

And so my way of working is to start by getting us out of our professional straitjackets and starting to talk to each other as human beings. And I can't tell you how powerful that process is. It's very simple, but all the time we hide behind our professional facades. Actually, we often are trying to, you know, we're not honest about our motives and our motivations. So when we applied the OnePlanet living process, it only worked with developers who were prepared to be completely honest and authentic about their motivations.

Now that is not something that we like to talk about in the industry. We talk so much about making money. We are motivated by making money, but we say we are motivated by doing the best for the community or building the best possible place.

So, you know, without that authenticity, we don't get good outcomes. I know that's challenging, but in fact, for example, we managed to get full entitlement for working in Canada on I think it was Canada's largest regeneration project, Zibi, which is under construction now. Very difficult. We had to go through five planning authorities. It was two cities, two provinces, two different languages, but it was also a First Nations interest as well. And we went through that entitlement process for, I think it was 5000 units. It was within a kilometre of the Canadian Parliament building, so an incredibly difficult, planning environment, you might think. But by using OnePlanet living, the simple story, and getting people talking just as human beings to each other we were able to go through that process in something like 18 months.

So there are massive financial savings as well to be made out of that, but only through, really, an authentic, honest process. And, particularly since the global financial crisis, I think sustainability and I would say almost all the big developers, are very cynical on that front. And I think the last ten years, for me, have been a bit of a disaster, and that we have to return - the ESG, the box taking the standards based approach- I think they have become a smokescreen for getting entitlements and then, continuing with business as usual as far as possible.

So I think we need a complete and honest conversation, because we are in a lot of trouble. I would say, I'm one of these people who believe we're in a state of collapse, social, environmental, economic. I think the world is getting more and more unpredictable, uncertain, but that also gives us the greatest opportunity to say, okay, we just can't carry on with this. Let's find a different way. Let's go back to basics. Let's take the time to go to a blank sheet of paper. You know, getting richer does not make us happier or healthier. You know, it creates, and the way capitalism works at the moment, it absolutely fundamentally drives more inequality.

And the consumer mindset we've created, I mean, we even talk about ourselves first and foremost as consumers. And in that process, and we've created a consumer economy in that process, we've actually consumed half of all living matter on the planet. So literally, if you weigh up the amount of living matter on the planet, all the plants, animals, etc., there's half as much as it was 300 years ago. So in creating a consumer

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society we've ended up with a planet which is half as alive as it used to be, and we need a living planet to provide us with the air we breathe, with the water we drink, with the food that we eat. So can we turn ourselves into, start from scratch and think about, okay, how do we generate health, healthier people, community, local economy and planet? And then can we regenerate those systems on which we depend. And I think, absolutely we can, but we need to go back to basics.

Janet Greenwood

Thank you, Pooran. And that back-to-basics approach, Caitlyn, that when working with clients in a place, what are the benefits of taking that much simpler, but systemic approach? How is it a good thing to do?

Caitlin Keating

So I think, Janet, if we take some of the potential impacts that Pooran has outlined, taking that systemic approach can help us think through, okay, this is a change that we want to make. And if we think about it as an ecosystem, these are the potential impacts it will have directly, but these are the potential impacts it might have indirectly on other things that we wouldn't have normally considered if we were just looking at something through a single lens. So being able to, I guess, identify and measure those impacts, so having the tools and techniques to be able to measure things that are not necessarily all the traditional things that we would see is really important when we're looking at these kind of place-based approaches.

Janet Greenwood

So what kind of things are they, those measures?

Caitlin Keating

So I think, some of the things that we've seen here in Australia is how can we better value things like social inclusion or the value of urban tree canopies, or how do we value, things like amenity. So when you're in a place and it feels great, how do we measure that? So you know, how can we give decision makers the information they need to be able to say, okay, there's value here. It's not something that's easily measured or monetised, I suppose, in a typical economic construct. But how can we look at the things that would normally get lost in the way that decision makers think about a potential change and give it a value and give it a prominence in the way that we're thinking about what we might do, how we might change up our environment.

I think also to that, being able to help decision makers visualize what those changes might be. So, you know, there could be any number of digital tools. And we have lots of different examples where we can show what those complex interactions look like and then also visualize those changes for decision makers because, you know, as Pooran said, some people are good at thinking it in one way and others are good at thinking in another. So how can we kind of grab the attention and be able to communicate that information in a way that different people can take on? So I guess it's up to us to be able to say, okay, I might be able to think about something in a complex way, by looking at a spreadsheet of numbers, but somebody else needs to see a 3D visualisation of what that looks like. Others will be like compelled by just written kind of narrative, things like that. So it's choosing, I guess, the right tools and techniques to bring out what those impacts are, and then thinking also about how do we communicate those messages to decision makers.

So, I think there's lots of great tools that are out there, even more exciting ones coming on kind of day by day. And it's

a really exciting place to think about, like, okay, what else is possible and how can we improve on this if we're thinking about things from the level of place?

Janet Greenwood

Yes. And I'd really echo what you said there about the digital tools, we've seen digital twins really becoming helpful and geospatial data. Super helpful. And there is a whole range of digital tools and of course, Pooran, OnePlanet is one of those digital tools.

Pooran Desai

Yeah. So, it was a very hard process, but we started to use very different database technology from the way most data is organized around projects and organisations, and in fact, that does parallel the two halves of the brain. But I would say what, what we've done is really get back again, I talk about getting back to fundamentals, we've created a platform OnePlanet.com. So, you can go to the platform, have a little play. There's a little canvas, but ultra simple. We take any strategy, policy plan, project, break it down into what we call its atomic structure of outcomes, what you want to achieve, actions, how you're going to achieve them, indicators, what you might track. Then once you've got it in that structure, it's a playful mind mapping technology. You just link things together, just start understanding how joined up you are internally. But once you've got your project plan strategy in this format of outcomes actions, indicators, we can connect any number of these together.

And Caitlin, you were talking about ecosystems, I think, connect them together in ecosystems. Identify the shared outcomes, see where the synergies are, see where the conflicts are gaps, opportunities and start collaborating. And again, I think it's the simplicity, that we need in order to solve complexity. So, I believe we've created the only platform where you can systems map and collaborate. And I'm pleased, I think today is the day we launch our Systems Connector training. We'll have a certification, around that, certified Systems Connector. People who connect systems together, people who say, you know, it's often thought as a 'nice to have' in an organization. I think these people are going to be the most critical to solve complex, interconnected problems where we know the problems can't be solved by any one organization, but a number of different organizations. So, it's a completely different way of organizing data and understanding data.

Janet Greenwood

And I love that idea of identifying a new cohort of Systems Connectors. When I first started in my career, you didn't have project management, you just built things. And of course, we've seen over the last three decades that emergence of project management as a well recognized discipline and who would be without it now? You have to use it judiciously, but it is absolutely essential.

And this shift towards a holistic, systemic approach is something we're seeing elsewhere. We're working with the World Economic Forum and the Baukultur Alliance on this much more comprehensive framework, because really, I think we would all agree, that there just isn't enough money to carry on doing things in silos. We have to be looking at co-investing for co-benefits, making each pound spent wash its face in a number of different arenas. So you know whether that is planting urban canopy, which also helps with your sustainable urban drainage, which stops flooding which cools the city, which increases biodiversity. It's really about making every pound be as effective as possible.

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And I think, Caitlin, if I can move to you for sort of a final reflection, it's really interesting that someone coming from that very, single focus, world of economics where, you know, historically it was all about the pound sign and you're broadening it out into a much wider field. And that's something that clients, that sort of zooming out to see the bigger picture, that's something that clients are increasingly interested in.

Caitlin Keating

Absolutely, I think we are increasingly seeing clients being open to that more innovative, holistic way of measuring the value of the change that they're wanting to make. So, it's an exciting time when we're able to look at things like social inclusion and try and think about, okay, how can we represent this in an economic framework or how can we think about what are the different parts that make up precinct amenity, and how could we measure them and how could we represent them in a robust and defensible way? Because, you know, in the past, we might have just talked about these things in a kind of qualitative narrative. Yes, there's a benefit here, but we can't really measure it, so it might be it might be big, it might be small. We're not really sure. But being able to put a value on these things and, I suppose, bring them to life really and give them a weight against some of those more traditional measures like, it could be travel time savings, or it could be economic growth or something like that. It helps to elevate the importance of those particular elements of impact.

And I suppose, you know, I always find myself in these conversations when people talk about economic costs and benefits. To me, I think of that as something that's very broad. I don't just think of it as, monetary impacts or, jobs or things like that. In my mind, economics it's all of those things. It's traditional economic metrics, but it's also social costs and benefits and it's environmental costs and benefits. And I think it's only by including that broad spectrum of things that might have historically been thought of as externalities, we would have called them in the economics world. And I think we they need to be core to the way that we think about, the cost benefit analyses that we're doing of any of these one particular projects.

Janet Greenwood

Yes, and I'm laughing there because I think the word externalities has a lot to answer for.

Pooran, I love the way you've reframed from systems thinking and systems reimagining. And is the sort of final word from you, is that something that you're seeing, getting traction on in regional authorities, in government? Can you feel a shift?.

Pooran Desai

I think there's some leaders out there, but they're very few at the moment, who really want to go back to this thing, I keep

coming back to, back to basics, and that authenticity about what do we really want to do and how do we really want to live?

But I can see as the world goes further into collapse and, I think we're talking about months, not years, and certainly not decades, we're going to see a need for a complete reimagining about what's important to us. And that's not least with technological changes like AI coming in. There's so many disruptors coming through. Of course, climate change is unfolding much more rapidly than we thought with the geopolitical tensions even compared to six months ago are much heightened now.

So, I think coming back into creating resilient, regenerative communities, which look after themselves, but also allow others to look after themselves as well is going to be the way forward. So there's going to be a massive relocalization, and I think that will rebuild community if we do that in the way which also rebuilds local, natural ecosystems as well, I think then we can get a way of, in fact, regenerating our one planet. So, I think we'll see that shift within the next six months. I think we're absolutely on the edge of a major paradigm shift, and we'll get pushed into that paradigm shift because our current systems, our current ways of thinking, simply do not work.

Janet Greenwood

Pooran, thank you. What a wide-ranging discussion that was. And I know that we could all, speak for much longer, but I do need to draw the podcast to a close now.

And reflecting that that simple focus of identifying shared outcomes, of taking that systemic approach to think in an ecosystem with the result that we will create resilient, regenerative communities. It's actually, for me, very inspiring and gives me a huge amount of hope for our ability to do things differently and to create the world in which we can all flourish.

So all that's left is for me to thank my guests Pooran Desai, founder of OnePlanet and Caitlin Keating, Partner in KPMG's Australia practice.

Thank you both very much!

Pooran Desai & Caitlin Keating

Thank you Janet

Host

Janet, Pooran and Caitlin, thank you for joining us for today's special episode on systems thinking in the built environment. Join us again next time for more insights from ESG leaders and innovators. You can also find our latest insights covering a range of ESG topics by visiting [KPMG.com/ESG](https://www.kpmg.com/ESG).

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Designed by Evalueserve.

Publication name: Infrastructure and the built environment: How AI can help accelerate the energy transition | Publication number: 140279-G | Publication date: March 2026