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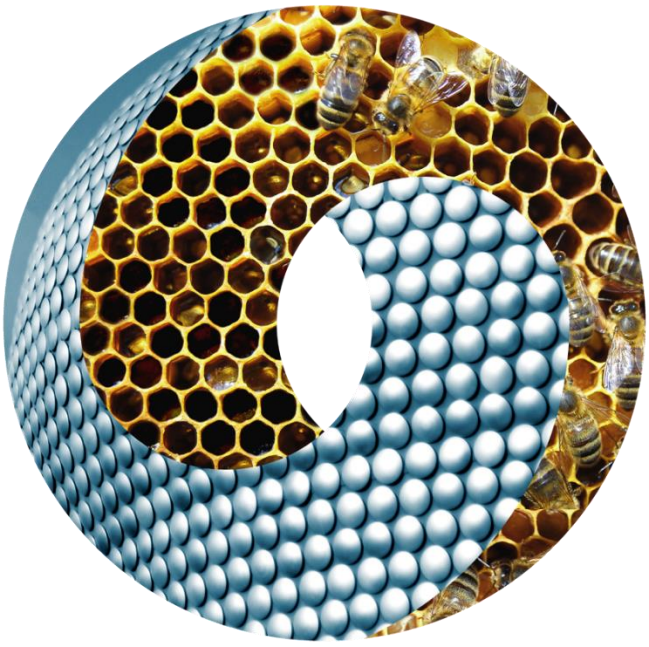
LECTURE N°3
2023 Series



Deloitte Climate & Sustainability Competency Lab

From science to business: providing companies with the knowledge to turn sustainability into action.

LECTURE N°3 | Climate change adaptation: consumer response to climate risk

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Interview with **Enrica De Cian**

Enrica De Cian is a full professor of economic policy at Ca' Foscari University of Venice. She is a researcher in the Economic Analysis of Climate Impacts and Policy division of the Euro-Mediterranean Center on Climate Change (CMCC). In 2012 she received the Marie Skłodowska-Curie International Outgoing Fellowship and in 2017 she received a starting grant from the European Research Council (ERC), as well as participated in international research projects funded by the European Union. Her research concerns the global impacts of climate change on the economy and society.

Q.1

How has the discussion and narrative of climate adaptation changed over the years?

If we look back at the history of international negotiation of climate change, like the 1990s, **the focus was on mitigation, both at a political and academic level**. And that was because on the one hand the main problem was to cut greenhouse gas emission, and on the other adaptation was not seen in a positive way. It was perceived as a response to the failure of reducing emissions and therefore mitigation.

I would say that **the situation changed significantly around the year 2000**, when the IPCC published the Third Assessment Report. At that point, there was **scientific recognition of the importance of adaptation as another climate response** that would need to **complement** mitigation. So it wasn't perceived as a substitute anymore, but as an additional type of action that policymakers and individuals in society would need to think about. Once climate negotiations started to address the issue of adaptation, then also the economic literature put more attention on this topic in the research.

Q.2

What challenges should we adapt to?

We should be adapting to all sorts of climate hazards that can be induced by **warming temperatures**, which is the very first effect of accumulation of greenhouse gases in the atmosphere. As we know, this increase in temperatures triggers and induces other changes, from melting ices - with the consequent increase in sea levels - to the increased frequency of certain **extreme events**, **such as floods and droughts** (see graph on the right for a more complete overview).

Also, some key **risks are region-specific** so we cannot make general statements that hold true for all the regions of the world. For example, in Europe, the key risk would be related to extreme heat that has consequences on human health, but also on ecosystems and biodiversity, as well as floods and droughts, which will be the main issues in our region.

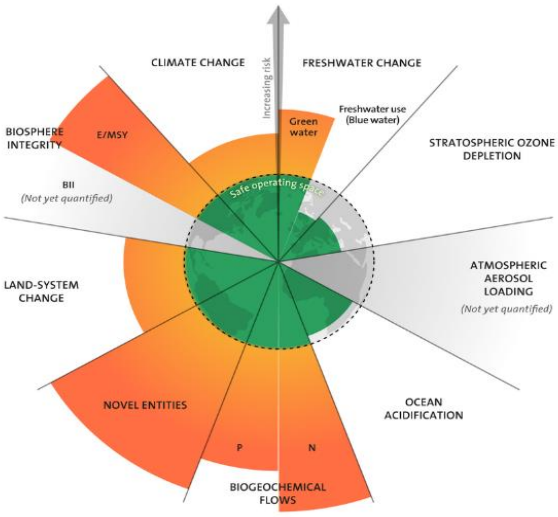
The range of adaptation actions that are needed is very broad and it can go from **individual choices** and behaviors to political strategies implemented by **local governments** or even national ones.

C-TAKEAWAYS

Fast facts for the C-level

- Mitigation and adaptation are not alternatives, but complementary actions and strategies.
- Climate risks are region-specific and entail different sorts of challenges.
- Adaptation concerns both individuals and larger entities, like companies and governments.
- Your R&D department is an important vehicle to develop sustainable products and services.
- There's a need for cultural change to adapt our consumption behaviors, and companies can be a vehicle for that.
- You should examine the behavior of people at work and promote changes that are energy-saving.

"The range of adaptation actions that are needed is very broad, and they can go from individual choices and behaviors to political strategies implemented by local governments or even national ones."



Source: Wang-Erlandsson et al 2022. The graph shows the nine key processes that regulate the stability of the atmosphere and earth's systems, and their boundaries. Each process affects the other, e.g. pollution from chemicals affects the freshwater cycles, which in turn affects the biosphere, and so on. We already crossed six of the nine boundaries. The green area is the "safe operating space", where large-scale and abrupt changes can be avoided.

Q.3

How do adaptation and mitigation work together? Are there missed opportunities?

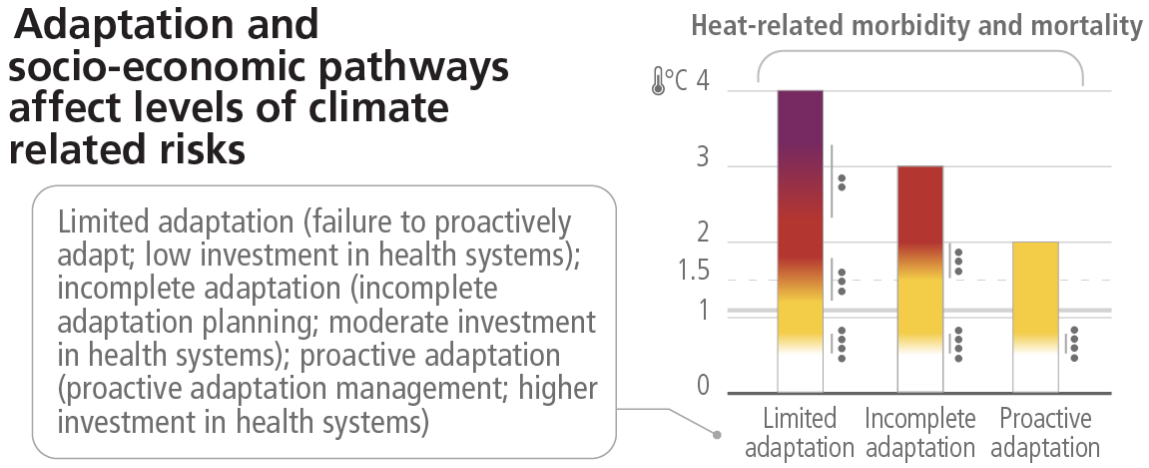
We could think about this question in a temporal way: **at the very beginning the key was to reduce emissions,** as I said. Mitigation was the type of climate response - the only one - that could tackle the problem at the source in order to eliminate it and reduce greenhouse gases: you could keep temperatures' increase under control, minimize its impacts and, therefore, reduce the need for adaptation. That was the original idea back in the 1990s. Then we saw that the reduction of emissions was not sufficient, as temperatures continued to increase causing impacts that were calling for adaptation. To some extent, we could in fact say that **adaptation became relevant afterwards because of the failure of mitigation**. Adaptation is something that we must do because mitigation failed. But, looking ahead, we should consider mitigation and adaptation as two complementary strategies that go together because, nowadays, we face a double problem: on the one hand, we need to avoid further increases in global temperatures through mitigation; on the other, we know that temperatures have already increased, and climate change is having widespread impacts. Consequently, **we also need adaptation to cope with the changes that have already happened and that will happen inevitably** and independently on what we do over the next 20-30 years. The truth is that because of the inertia we have in the climate system, even if we were to stop all emissions today, all of a sudden, in the next 30 years temperatures would still go up. The graph below shows the benefits of having a join mitigation-adaptation strategy.

Q.4

What is the role of cultural and behavioral factors in energy demand?

Culture and behaviors are critical factors that certainly and primarily affect the way we use energy. This is very subtle and difficult to see because we are strongly shaped by the society in which we develop and grow up, but nonetheless there are sociologists and anthropologists underlining that the **notion of comfort**, which is definitely related to energy, is shaped by society and **culture, that is in turn shaped by the availability of energy**. Today we have an energy crisis, and, in the past, we also had several spikes in energy prices. But if you take a long-term perspective and think back to the industrial revolution, for example, we became capable of generating the energy we needed, **when we needed it and where we needed it**. **We were completely able to control the supply and generation of energy** thanks to fossil fuels, and that was a major difference compared to the renewables which were used also before the industrial revolution. **Fossil fuels prevailed because they could be controlled and used in case of a need of power**.

All of this created a society living in the abundance and availability of energy and that is why **we need a cultural change**. But I think that we first need to understand this relationship and, as the latest IPCC report shows, **there is a great mitigation potential of behaviors**. We could save a lot of energy by simply being more careful with our daily lifestyle and by staying informed.



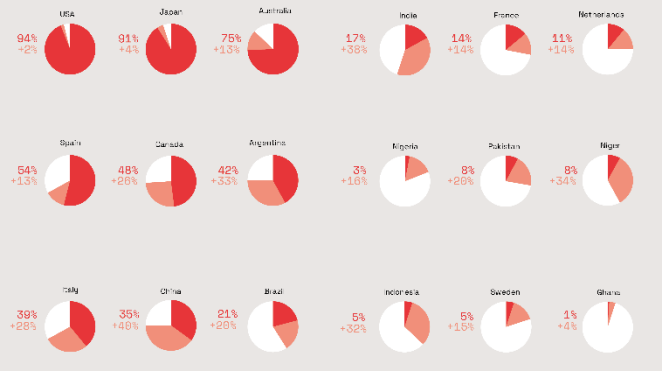
Source: IPCC, Sixth Assessment Report. For every given temperature set by emission pathways (mitigation policy), adaptation makes a difference (see different temperatures according to the intensity of adaptation implementation), showing how mitigation and adaptation should move together.

Q.5

Why is it important that this topic enters the corporate narrative and what benefits can companies get out of it?

Mainly because many people spend a lot of time at work, which makes educating employees about energy behaviors very important to address the necessary reduction of energy demand. A lot of the research has focused on the behaviors of people at home, but **it would also be very important to investigate the behavior of people at work**.

Depending on the sector, companies can also be a powerful vehicle not only to foster certain behaviors, but also to have an **R&D department which helps develop products and services**, mindful of their energy footprint.



Source: De Cian et al. 2023. The Cooling Solution. The future of air-conditioning and its impact on society. SBN: 979-12-210-3229-1

Q.6

What is the role companies need to play and what advice would you give to the C-level?

I think more emphasis needs to be placed on **operations** and **human resources management**. Operations because there's often a gap between the everyday life of workers and what the top levels know to be the right behavioral option. Think about the working comfort condition and the energy use. In offices, it's mostly employees turning on and off heaters, trying to set the right temperature. Energy inefficiencies could be avoided by examining and monitoring energy-related behaviors at work and by **creating working conditions that are less energy intensive**. More care at work, where people spend most of the time, could then spill over to behaviors at home. Consider for example air-conditioning. Today, many people get accustomed to AC at their workplace, and this might contribute to increasing AC prevalence in residential buildings as well (see graph on the left).

Human resources management because there could be **more flexibility** towards the working shift of employees, so that people can work from home or maybe even from green locations - e.g., parks, like Carlsberg did – so to foster a possible reduction of energy use.

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