



## Climate Crisis: From Dreams to Hope

**Sustainable trends in business need to focus on facts, rather than on romantic ideas about the environment.**

Recent years have seen great progress in awareness of sustainability – in **finance**, in the **boardroom** and in **leadership**. Business and society can't succeed without it and we are becoming resourceful about certain aspects of sustainability. When it comes to climate change, however, there has been a temptation to lean into a romantic ideal of Mother Nature healing herself with just a bit of nudging from business. This may be viewed as an abdication of responsibility.

Humans are now considered a determining factor on the planet's geochemical, physical and biological dynamics according to the theory of the **Anthropocene** era, the **start date** of which is not yet fixed. Nature has developed amazing adaptation processes that can teach humans how to have a more beneficial impact. These lessons emerge from data, so we owe it to ourselves and future generations to **"listen to the scientists"** as Greta Thunberg recently exhorted the US Congress.

At a recent event co-sponsored by the **Hoffmann Global Institute for Business & Society** and the **Institut de la transition environnementale**, researchers from INSEAD and parts of the greater **Sorbonne University Alliance** met to discuss sustainability and how they need to be aware of one another to find successful and innovative solutions to climate change, amongst other issues.

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Business and ecology academics considered how they could collaborate and work towards clear-eyed solutions to today's urgent problems. Examples came from olive groves in Spain, examining the profitability of a global seed manufacturer, ecological accounting, carbon sequestration and the circular economy.

A theme that ran through all presentations was the importance of data, not dreams, when tackling important problems. In the circular economy, for example, industries have to prepare for change whilst considering what consumers want now. We can't wait for that mythical ideal buyer who will recycle and reuse the same product. In ecological terms, the potential loss of rare animals is frightening, but it's not as devastating as when more common organisms (like pollinators) that are vital to the food chain are threatened.

Business must learn to cope with climate change, starting with agriculture, an industry sometimes perceived at odds with ecologists. Farmers may want only one crop in their fields, but biodiversity is essential. It includes the variety of interconnected plant and animal life in a given habitat that is necessary for that locale. It's not only important for the environment but also for business; one researcher shared how biodiversity could be a factor in increasing profit.

## A new accounting

Business will have to do more with less in the face of climate change. To meet this challenge, companies must use updated, more relevant methods to understand what they are working with.

**Denis Couvet**, professor of Ecology at France's National Museum of Natural History, discussed how environmental **accounting** can work with business. Ecologists have proposed methods and concepts that fit with traditional accounting in order to conceptualise environmental input/output. A push from the UN for the **Natural Capital Accounting Project** – piloted in Brazil, China, Mexico and other nations – will contribute towards a standard in ecosystem accounting.

Couvet also spoke about agroecology, a type of farming that entails optimal use of natural resources in food production. There are many frameworks to promote agroecology. Amongst them, **CoFarming** involves ten French start-ups working together with farmers. Some of the proposed best practices include the use of digital resources and the study of life-cycle analyses with digital tools. **AgriMind'lab** is a coaching platform that invites new farmers to join a community to help them manage their resources.

Wider innovations occur, and not only in Europe. China, for example, has created a 'payments for ecosystem services' framework for switching to dry land farming in an attempt to preserve water. Moreover, the Chinese government has created a participatory platform for scientists and farmers to work together. Its structure recognises that there are different kinds of farmers with different skills and needs, as well as opportunities to improve agricultural practices.

### Adaptation: Thousands of years of experience

How closely should farmers and business stay to natural systems that have tremendous experience (and success) in adapting? The US\$50 billion seed industry is trying to make the most efficient products possible and is the cornerstone of global food security, according to INSEAD PhD candidate **Utku Serhatli**, who presented his work on **seed manufacturing** in the face of climate change.

His working paper with INSEAD Professors **Enver Yucesan** and **Andre Calmon** shows how climate change means the yield variability of corn is expected to increase and that more land will be required to produce less corn over time. The impact of temperature changes, higher CO<sub>2</sub>, more droughts and floods, and stronger hurricanes directly affects seed production. The researchers found that due to the processes associated with creating hybrid

seeds, climate change will hurt the supply of low margin seeds more. These types of seeds are typically sold to poor countries. Because of their current development cycle, it's more profitable for seed manufacturers to ignore low quality seeds.

Of course, this has an impact on food security in developing countries. Rather than relying on seed manufacturing giants to produce hardy seeds, developing nations could consider their own seed development or perhaps **participatory seed farming**. Natural systems have spent thousands of years improving themselves and should be taken into consideration when creating new ways to feed the global population.

Climate change can have an impact on traditional operational improvement. For instance, one area in which giant seed manufacturing firms invest heavily is data analytics to improve demand forecasting. They are hoping therefore to delay product differentiation (which Serhatli refers to as "postponement") so that these firms can have visibility with regards to demand before making allocation decisions. The impact of climate change would render these traditional improvements much less effective and further worsen food security in developing countries. In general, climate change might necessitate a paradigm shift in how we approach agriculture, Serhatli said.

### Does the solution lie beneath our feet?

**Luc Abbadie**, a professor of Ecology at Sorbonne Université, described the use and need for carbon sequestration – the removal and storage of carbon (usually carbon dioxide) from the atmosphere into carbon sinks through physical or biological processes. **Forests** can act as a carbon sink, but it's important to understand that they can't take all the excess carbon dioxide out of the atmosphere. There must be a balance between emission reduction and carbon sequestration.

Deforestation is dangerous not only because we need trees to offset emissions, but also to retain life-sustaining carbon in the soil. In tropical areas, switching from forest to crops can deplete carbon in the soil within two years; in temperate climates, the loss (so far) takes about 100 years. There is some encouraging news from this sector as carbon was previously thought to reside only in the top level of soil. Tests on deeper samples have found carbon from thousands of years ago in some cases.

To encourage carbon retention in the soil, ecologists suggest modifying an established method. Rather than just incorporating straw into soil, it could be better to integrate straw that's been sitting around for months. Over time, microorganisms alter the chemistry of straw, which changes the complex

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relationships between carbon input and carbon accumulation and could result in better carbon accumulation in soil.

Abbadie spoke about the need for a systemic view of the whole of biodiversity with costs and benefits. Nature's solution – the result of thousands of years of selection – is often very good, but it doesn't mean that it's the only one. Whilst capitalising on "natural" knowledge is ideal, industry and society must participate in solving the myriad problems generated by climate change.

Professor of Geography **Marianne Cohen** presented her work on agricultural activities facing environmental transition in France and Spain, specifically, olive groves. Bucking against the local knowledge that rainfall in the Spanish region of Andalucía was the most important factor in olive oil pricing, Cohen looked at the data and discovered that other factors, including storage from the previous year, were much more important.

In her **study**, the grove with the lowest biodiversity fetched the lowest price per litre (Sierra Magina, Andalucía). The highest biodiversity was found in French vine regions (Terrasses du Larzac, Bandol) and in the village of Saint-Guilhem-le-Désert, where olive oil is either a niche product or cultivated by amateurs for their own needs.

### Real help for business

Ideals from the **circular economy** were brought to earth by INSEAD Professor Luk Van Wassenhove. The concept of decoupling economic growth from the consumption of the earth's resources requires assistance from experts in business. Moving from a romantic to a scientific view, Van Wassenhove said that companies need simple **analytical tools** to evaluate alternative business models.

For the circular economy to be successful, a balance amongst access (logistics, competition), technology (product design for either durability or recycling) and the market (consumers may not be interested in refurbished goods) must be struck. For an effective "circular economy", industry needs to shift away from pure production towards delivery as a service by linking policy, finance, consumers and **business**.

It is critical to reduce the uncertainty associated with the circular economy. There are some associations with another new economy – the sharing or gig economy. For companies like Uber and Airbnb, the focus is not production. Despite having raised tremendous amounts in funding, these firms are still not profitable, which puts the concept of "sharing" on shaky ground.

Although we all must live with the changes around

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us, perhaps executives are best placed to work with climate change, having successfully grappled with mammoth digital disruption and organisational shifts. There is, patently, more on the line this time though. "It's a question of civilisation," Abbadie reminded the researchers. As with other disruptions, an open mind is required to see the facts as they are and innovate based on data, not fairy tales about Mother Nature.

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