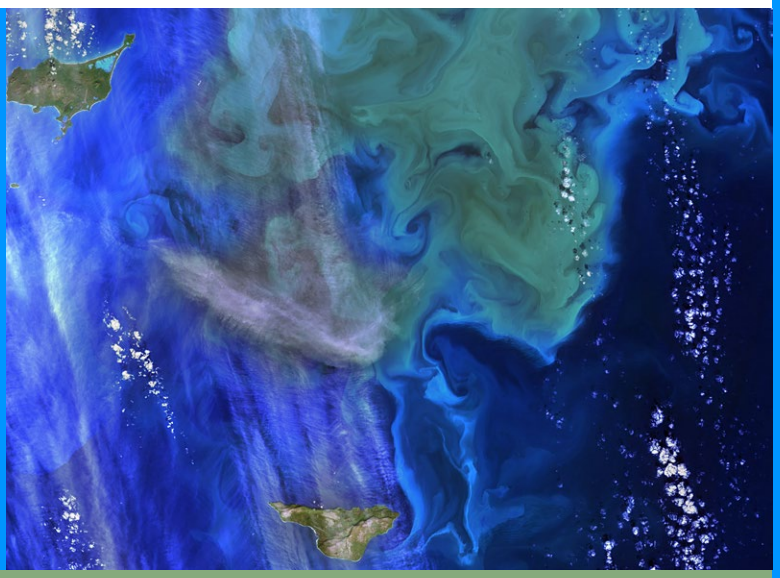
URGENT MASSIVE ACTION PLAYS

Climate-KIC
Co-funded by the European Union

The latest IPCC report is, "a clarion call to massively fast-track climate efforts by every country and every sector and on every timeframe". It is time for urgent and massive action.

Climate change is an existential threat and the window to act is closing fast. Incremental changes are not enough. To turn the tide on climate action, contain global warming to 1.5 degrees and restore our planet, we will need radical new approaches. What are the urgent, massive interventions that we will need to make?



— Massive biomass regeneration – Carbon capture will be a fundamental pillar in any future scenario. We should be looking for effective ways to capture carbon that mimic natural ecosystems and promote biomass regeneration. For example, whales play a vital role in moving biomass from the ocean depths to the surface. Whale poo stimulates growth of large "ocean forests" of phytoplankton that can capture vast amounts of carbon dioxide and contribute to the re-fertilisation of the oceans. Already plans to release artificial whale poo on a large scale are under way.

— Cloud cover – One of the most dangerous results of climate change is the melting of the Arctic ice cap. As well as the more obvious issues of rising sea levels and the changes to warm air circulation, we also know that for the summer months the ice cap plays a major role in controlling global temperatures by reflecting sun rays. It is imperative to explore solutions that focus on reflection. One such project is researching how to cover the Arctic with white cloud during the critical summer months, at a probable cost of around £10 billion a year. The cloud cover approach is also being considered for other applications, such as restoration of the Great Barrier Reef.

— Regenerative agriculture – Reducing the carbon footprint of the agricultural industry is a short-sighted approach. We need to explore opportunities for regenerative interventions. For instance, replacing cattle entirely with lab-based meat may not be the whole answer to reducing greenhouse gas emissions from meat production. Grasslands are incredibly effective at sequestering carbon – rivalling forests – and virtuous regenerative grazing could be deployed. This approach needs grazing animals who help spread carbon below ground into the soil to feed microbes.

— Reprogramming humans – We will not alter our future without changing our behaviour. Research indicates gamification, using gambling principles and quick feedback loops, can make polarised opinions less extreme. There are, however, far more radical neuroscientific approaches that enable a direct manipulation of people's thought patterns. While interesting, these approaches require careful consideration of ethics and risk.

— Direct Air Capture –Reducing CO2 emissions, whether now or in the future, will not be enough to reach Paris Agreement targets. We must be able to remove carbon from the atmosphere. In addition to nature-based solutions like afforestation, technology to capture and store carbon directly from the air is already available. It uses limited land and water resources and produces natural mineralised stone. This kind of technology must be a part of the carbon capture mix.

CLIMATE REPAIR

David King and the University of Cambridge Centre for Climate Repair have been working on developing a range of technologies to achieve deep and rapid emissions reductions without environmental damage, enhance the resilience of vulnerable ecosystems and reduce the risk of catastrophic climate tipping points.

One of the most interesting and innovative of these technologies is the use of enhanced weathering, a process that involves accelerating the natural process of rock weathering to capture carbon dioxide. Enhanced weathering works by spreading finely ground rock over large areas of land, where it reacts with carbon dioxide in the air to form stable bicarbonate minerals. This process not only removes carbon dioxide from the atmosphere, but also has the potential to improve soil health and enhance agricultural productivity.

REGENERATIVE CAPITALISM

Natural Capitalism Solutions, led by Hunter Lovins, has been working with businesses, governments, and communities around the world to promote regenerative practices that restore natural systems and promote social justice. Her approach emphasises the importance of building resilient, sustainable economies that benefit people and the planet. Regenerative capitalism shifts the focus from short-term profits to long-term sustainability, creating value for all stakeholders, including the environment. The centrepiece is research into regenerative agriculture including grazing animals on grasslands. This can replicate soil rich in microbial funghi and put a ton of carbon per square metre per year back in the ground. It has the potential to reduce carbon emissions, restore ecosystems, and create new long-term economic opportunities, demonstrating that a finer future is possible.

EIT Climate-KIC is Europe's leading climate innovation agency and community, supporting places and industries bridge the gap between climate commitments and current reality.

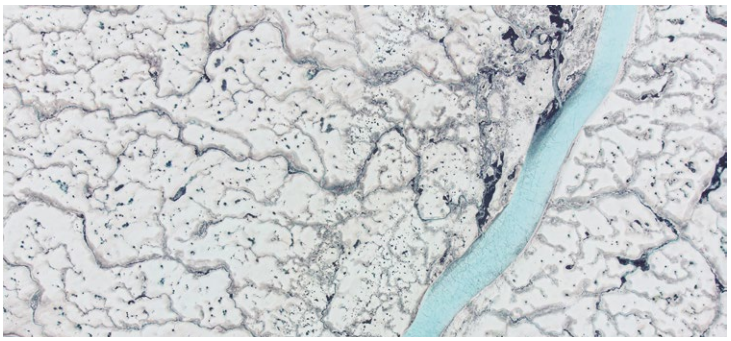
This is one of ten insights derived from a series of conversations hosted by EIT Climate-KIC. Thinkers and practitioners from multiple disciplines discussed emerging trends, challenges, possibilities and implications for climate actions.

"We need to remove greenhouse gases at scale and quickly. So we need projects that remove 10 billion tonnes per year."

"If you are human, at 50 degrees you cannot get rid of excess heat. In India and Pakistan extreme heat events at this level are increasing all the time."

"Grazing animals coupled with renewable energy will cut carbon emissions. We know what to do, and we know how to get away from an extractive society."

"Every additional tonne of greenhouse gas emissions that we put from now on into the atmosphere will have to be removed to create a manageable future for humanity."



CONNECTING THE DOTS

There are many different actors, different perspectives and different approaches to the climate crisis. But there is only one necessary outcome, and an imperative to connect the dots, so that solutions build on each other and accelerate systemic change. Understanding one another's perspectives would be a good starting point. How could organisations work on this element of connecting the dots, breaking down the complexity of systems change into digestible bites. The qualitative element should be embedded across.

CHAMPION EFFECTIVE TECHNOLOGY

Marshall McLuhan said, 'first we shape the tool and then the tool shapes us'. The way technology is getting to market is incredibly broken, especially in Europe. Could innovation champion technology designed to achieve regenerative, ecosystem outcomes and leverage urgent, place-based transformations to break technology out of the graveyards of invention and financial greed into new and complex implementation spaces. Enablement matters: identifying and building the capabilities and the unusual allies needed.