From: Daniel <daniel@madeofair.com>
Sent: Tuesday, 20 June, 2023 0:11
To: Supervisory-Body <Supervisory-Body@unfccc.int>
Subject: Structured Public Consultation - Removal Activities

Dear Supervisory Board Members,

I am writing to you today to emphasis the potential of a third mechanism for carbon removal, or carbon management, occupying an intermediate space between offsets and removals. Offsets and emissions reductions are afflicted by a perceived abuse potential, in terms of double counting and false emissions mitigation claims. Removals are seen as safe mechanisms for application under Article 6.4. but require permanence of hundreds of years.

If it isn't considered, a sequestration pathway with a huge potential to suspend carbon at relevant scales could easily be overlooked by adhering to the strict dichotomy of short-term offsets or emissions reductions, and permanent removals. I am referring the rethinking of global supply chains as carbon pools – circular materials pools in which carbon can be suspended for relevant amounts of time or, alternatively, extracted and disposed of in permanent end-of-life sequestration. While this approach is gaining acceptance for mineralized materials such as concrete, it is not seriously considered, yet, for non-permanent applications, such as plastics, for a concern of reversals once even durable plastics applications expire after years to decades, at which point they may face incineration. Yet with sufficient monitoring with inventory management software, it can result in quasi-permanent carbon storage at a very large scale. Replacing 10% of global plastics with a material such as biochar or carbon black from renewable methane pyrolysis, or similar biogenic carbon materials, has the potential to draw-down and store up to 3.3 Gt of CO2, annually. Chemical recycling processes will enable the permanent removal of these 3.3 Gt in a solid phase, after the carbon is split from the polymer fraction and safely sequestered underground. Alternatively, these materials can be stored as bio-oils or in a gas phase, if incineration is coupled with CCS. Horizontal stacking could incentivise recycling and permanent end-of-life removals.

We are experiencing the implementation of circular economy ideals at industrial scale. Large industry players are banding together to transition to circular material economies. Many technical, economic and political questions remain. Yet, once we divest in linear material supply from fossil and mined resources, a shift to biological or renewable resources, or initially fossil and mined resources which are then recycled, is inevitable. We are already developing tools to quantify and track materials and inventories in circulation, in many cases as add-ons to existing enterprise resource management (ERM) software. CO2.com, partially funded by Salesforce Inc. is thinking of some of these add-ons as extension of its already mature products.

While many products may only have a use phase of a few years, or a few dozen years in case of construction materials, once we accept circularity, these materials will remain in circulation for as long as societies are stable that can maintain these mechanisms and act as a custodian of circular materials pools. With the right approach, these material pools can contain and sustain huge amounts of biogenic carbon content in circulation. We have the digital tools to track and quantify the maturity and volume of these carbon pools suspended in circular materials. Our infrastructures require huge amounts of raw materials. And we have the technical means to extract carbon after a useful product life, to sequester it in similar ways as conventional CDR. With these tracking tools in place, the risk of reversal is not zero, but it is also not 100%.

Creating a demand for atmospheric carbon in products has huge economical advantages. Through the benefit of a useful product life, carbon draw-down in many cases comes at no additional cost. If the material solutions are suitable for existing manufacturing processes, the demand for these solutions is already at the scale required, today. CDR capabilities will have to be scaled up quite rapidly from a few thousand tons p.a. to the required Gt scale.

Potential reversals or leakages can be calculated as factors applied to carbon removal or mitigation claims. For each use case, data can be generated during trials regarding leakage models, which can be applied as factors to any carbon removal claims. The methodologies can be developed to create safer and higher quality carbon mitigation in the world's material supply chains. We hope some of these, with sound tracking approaches, should also be considered under Article 6.4.

Best regards,

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