18th June 2023

Removal activities under the Article 6.4 mechanism

Clean Air Tech Limited, UK, response to information note

To,

Supervisory Body
United Nations Framework Convention on Climate Change (UNFCCC)
Email: Supervisory-Body@unfccc.int

RE: "Structured Public Consultation - Removal Activities"

Dear Supervisory Body,

Thank you for your continuing efforts to ensure that the UNFCCC considers carbon dioxide removal (CDR) as an essential component for a just energy transition and to limit warming to 1.5 °C. We are one of the companies competing in $100 million XPRIZE Carbon removal Competition sponsored by Elon Musk Foundation. We appreciate your invitation to respond to the call for input that you issued. Specifically, we would like to share some thoughts here in response to the Information Note entitled "Removal activities under the Article 6.4 mechanism" (A6.4-SB005-AA-A09 version 0.40).

As one of the competitors, we understand XPRIZE $100 million CDR competition's main objective is to encourage and help commercialization of industrially scalable engineering-based CDR innovations from around the globe to bring climate justice to disadvantaged communities.

The very purpose of the engineering-based CDR innovations is to accelerate the Nature's process of CDR from Air by Soil, Ocean, Photosynthesis, Rocks, and from Direct Air Capture (DAC). In other words, doing Nature's CDR in a way Nature alone might have not done and might not do in future, at least to our understanding until now. We say this because we can never stop learning about our Mother Nature.

By Nature, Soil, Ocean, Photosynthesis, and Rocks do CDR but it is a slow process. Engineering-based innovations can accelerate that CDR. Many might not know that DAC can accelerate that CDR. To our knowledge, there are two methods for CDR in DAC: a two-step process method; and a one-step process method.

In the two-step process method, the separation of CO2 from air is accelerated in the first step, which as we know it is something Nature cannot do nor has done before. In the second step, the separated CO2 is sequestered under the Ocean and Earth's surface, which again it is something Nature cannot do nor has done before, at least to our understanding until now.

The one-step CDR process method by-passes the step of CO2 separation from air and accelerates the direct sequestering of the CO2 that is contained in Air, which again it is something Nature cannot do nor has done before, at least to our understanding until now.

Therefore, it can be safely concluded that without engineering-based solution, accelerating our Mother Nature's CDR process is not possible, at least to our understanding until now.

The efforts taken to implement the noble idea of XPRIZE and Elon Musk Foundation has attracted many engineering-based CDR innovations to compete for a mega $100 million prize pool. An immediate productive outcome from this effort is, we came to know about many brilliant innovations which have the potential to **accelerate CDR (ACDR)** but need funding to reach industrial scalability. Once that stage is passed, this will lead to an even greater productive outcome when all those deserving CDR process innovations integrate under one roof to further **accelerate CDR (ACDR).** In our opinion, such integration can be decentralised to distribute its outcome benefits equally throughout the global communities. It will help all deserving ACDR innovations to commercialize and to receive greater market accessibility.

The **Decentralised Integrated Process Approach (DIPA**) significantly reduces the cost of ACDR. It is obvious that the operation and maintenance costs in DIPA will be cheaper. For an example, a number of engineers can manage multiple processes that deliver multiple unprecedented sustainable products and benefits as outputs. This is significantly economical when comparing to a scenario wherein the same number of engineers manage a single ACDR process which delivers lesser outputs. Furthermore, DIPA will help bring economic, environmental, and social justice to disadvantaged communities around the globe.

Carbon credits earned from CDR in an under developed and developing economy can become a financial instrument to repay their debts to the developed economies. Therefore, it is a win win globally to all stakeholders working towards addressing Climate Change, and to alleviate Poverty and Pollution.

Process innovations for ACDR from Air, Soil (land), Ocean, and Rock tracks will work together in each DIPA platform. Working together, each ACDR process innovation will contribute to create economic opportunity and offer environmental co-benefits.

Therefore, in our humble opinion, the note's framing of ACDR as either "engineering-based activities" or "land-based activities" is incorrect. Without engineering-based solutions, accelerating CDR (ACDR) from "land-based activities" and "ocean-based activities" is not possible. Integrating all activities (processes) will collectively accelerate CDR (ACDR). This integration will help all "engineering-based activities/ACDR solutions", "land-based activities/ACDR solutions", and "ocean-based activities/ACDR solutions" working collectively become consistent with UN's Sustainable Development Goals. Therefore, moving forward, addressing all mentioned ACDR solutions as "engineering-based activities/ACDR solutions" is correct.

The current use of term CDR for engineering-based solution can be confusing. To avoid any confusion in the future, we suggest the term CDR must be limited to what Mother Nature does without help from engineering-based ACDR solutions. Instead, the use of term **ACDR - "ACCELERATE/ACCELERATING/ACCELERATED CDR"** is more appropriate for engineering-based ACDR solutions. We reiterate, engineering-based ACDR solutions are essential to accelerate CDR.

To give few examples, even a simple ACDR solution that requires grinding of alkaline minerals into a fine powder and spreading the powder over top soil to ACDR from Air, Soil and Ocean, requires engineering-based solutions for cost effective grinding and spreading. Even planting trees, sustainable agricultural practices, Oceans' Alkalinity Enhancement to ACDR from Air requires engineering-based solutions such as producing pollution-free carbon negative electricity and Hydrogen to run tractors, pumps, ships etc.,

DIPA Limited in the U.K. is a not-for-profit organization which specializes in integrating "ACDR" process innovations into a single collective process. **Clean Air Tech Limited** in the UK is a member in DIPA Limited.

About Clean Air Tech (CAT):

CAT has developed a one-step DAC "ACDR" process innovation. This does ACDR using Mother Nature's mineral carbonation process to produce sustainable aggregates. Also, CAT is developing another DAC "ACDR" process innovation. This does ACDR using Mother Nature's photosynthesis process to produce algae biofertilizer. In the near future, CAT will develop yet another DAC "ACDR" process innovation. This does ACDR from applying biochar produced from waste biomass, and biofertilizer produced from grey water to the top soil. This ACDR process innovation improves Soil Organic Carbon Content (SOCC) in the top soil which will result in ACDR from Air, Soil and Ocean.

About DIPA:

DIPA is a **not-for-profit** organisation to facilitate Economic, Environment, Social, and Climate **Justice** to **Disadvantaged Communities** in the process of achieving **True Net Zero** in association with its member companies and associate organisations using the powerful knowledge of **"Decentralised Integrated Process Approach"** which combines various innovations, technologies, strengths, experience, knowledge, and resources of DIPA members and associates.

DIPA welcomes membership and association from all kinds of "ACDR" innovations and organizations working to support "ACDR" innovations because **no single ACDR innovation can achieve True Net Zero**. ACDR innovations include any innovation, technology and services that help accelerate achieving True Net Zero whilst alleviating Poverty and Pollution, generating greater employment opportunities, and initiating economic and social development in disadvantaged communities.

We trust that our response can be of use to the Supervisory Body as it moves forward with its work.

Yours sincerely

Prakash KN
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