

Accelerate Development and Scale-up of Climate Solutions Concept Note

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A. Executive Summary

Climate change is a very major threat facing humanity in the 21st Century. Leading scientists have called it an [‘existential threat to civilization’](#). Despite the [alarming news](#) and mounting pressure for urgent action, the political process appears to be in a stalemate. COP25 in December 2019 [did not reach an agreement for a coordinated large-scale action on climate change](#).

However, not only will the political process not likely achieve the greenhouse gas emissions (GHG) reduction goals of the Paris Agreement fast enough, but public funding sources are not sufficient given the scale of investment required. Morgan Stanley estimates that [the world needs to spend \\$50 trillion by 2050](#) to reduce net carbon emissions to zero and meet the [Paris Agreement](#). In addition, UNDP estimates that [85 to 90 percent of the funds needed to achieve the Paris Agreement need to come from the private sector](#). Therefore, emergency action is required and most of the money to finance this action needs to come from the private sector.

Fortunately, the alarming [news about climate change](#) and dire warnings about the [expected financial impact of this change](#) are driving financial stakeholders to advocate climate action. While climate related risks represent an [unprecedented threat to the global economic system](#), investing in solutions that mitigate or adapt to climate change (Climate Solutions) has become what some experts are calling an [unparalleled business opportunity](#).

To help seize this opportunity, ClimateSAN has developed an initiative with two streams to accelerate the development and scale up of Climate Solutions by introducing these Climate Solutions to wealthy investors. The first stream has been launched and focuses on proven, investment-ready solutions and the second stream, which focuses on promising early stage solutions, is expected to be launched in the near future.

Our team is currently working with faculty at Ryerson and York Universities on an initiative entitled "Development of Methods to Increase Funding for Scaling-up Climate Solutions," which seeks to accelerate investment in proven, investment-ready Climate Solutions by connecting them with available capital. Since there are many very promising early stage Climate Solutions that should be rapidly developed and scaled-up, we are expanding this initiative to also help accelerate the development, implementation and commercialization of these early stage solutions.

There is already broad support across the political spectrum in many countries for the development and scale-up of Climate Solutions funded by private investors. Although no agreement has been reached by world leaders to implement adequate coordinated action on climate change, when this agreement is finally achieved, our proposed initiative will enable many more Climate Solutions to be ready for rapid implementation on a global scale.

[We at ClimateSAN](#) welcome volunteers who are interested to help us implement this initiative. If you are interested, please contact us at info1a@climatesan.org.

B. Problem: Insufficient Action on Climate Change

- COP25 Did Not Achieve Needed Results Despite Urgency

Climate change is a very major threat facing humanity in the 21st Century. In October 2018, the Intergovernmental Panel on Climate Change (IPCC) released a report [warning of the catastrophic consequences](#) of runaway climate change unless warming is kept below 1.5°C above pre-industrial levels, and calling for ‘rapid, far-reaching and unprecedented changes in all aspects of society’. In November 2019, a group of leading scientists called climate change an ‘[existential threat to civilization](#)’ and the present day a ‘state of planetary emergency’. Scientists and activists are calling for an emergency response to avoid tipping points, ecological breakdown and planetary catastrophe.

Despite the [alarming news](#) and mounting pressure for urgent action, the political process appears to be in a stalemate. The [2019 United Nations Climate Change Conference](#) or otherwise known as the 25th Conference of the Parties (COP25), which was hosted in December 2019 in Madrid, [did not reach an agreement for a coordinated large-scale action on climate change](#). See news articles:

a) EuroNews article: [‘COP25 is a failure’, say climate activists](#) by Marta Rodriguez Martinez, December 12, 2019.

b) Common Dreams article: [‘We Are Furious’: As COP 25 Draws to Close, Green Campaigners Fume as Rich Nations Move to Gut Paris Agreement](#), by Andrea Germanos, December 13, 2019. *“Just as we thought the slow pace and weak ambition shown at the climate talks couldn’t get worse, along comes COP 25.”*

It appears that the global political system will not be able to create binding agreements soon enough or ambitious enough to enable the world to rise to the challenge on climate change and avert global catastrophe. [Several leading scientists have noted that](#) “If current national pledges to reduce greenhouse-gas emissions are implemented — and that’s a big ‘if’ — they are likely to result in at least 3 °C of global warming.” Greater ambition is required to keep the world from warming less than the recommend goal of 1.5 °C.

However, not only will the COP-related political process not likely get us there fast enough, but public funding sources cannot get us there alone given the scale of investment required. Morgan Stanley estimates that [the world needs to spend \\$50 trillion by 2050](#) to reduce net carbon emissions to zero and meet the [Paris Agreement](#). UNDP estimates that approximately [85 to 90 percent of the funds needed to achieve the Paris Agreement need to come from the private sector](#). Therefore, emergency action is required and most of the money to finance this action needs to come from the private sector.

C. Recent Developments Creating Opportunity

In the absence of universal political drivers and mixed social drivers for climate action, we believe that focusing on economic and technological drivers creates a window of opportunity to substantially increase action on climate change. The following two major growing trends are creating this window of opportunity:

1) Very Wealthy Investors are Becoming Very Alarmed and Demanding Action

The alarming [news about climate change](#) and dire warnings about the [expected financial impact of this change](#) are driving financial stakeholders to advocate climate action. The number of very wealthy individual and institutional investors, who collectively manage trillions of dollars in assets, are becoming increasingly concerned about climate change. For example, the [Institutional Investors Group on Climate Change](#) and their partners have issued a series of statements demanding action on climate change. As shown below, each time they do so, the number of investors grow along with the assets managed by these investors:

- a) Ahead of COP24, The [2018 Global Investor Statement To Governments On Climate Change](#), signed by 421 investors representing more than US\$32 trillion in assets, strongly urged all governments to implement the actions that are needed to achieve the goals of the Paris Agreement, with the utmost urgency.
- b) Ahead of the June 2019 G20 Summit, [Investors with \\$34 Trillion Demand Urgent Climate Change Action](#) wrote an open letter to the “governments of the world” stressing “the urgency of decisive action” to achieve the Paris Agreement target. The letter was signed by 477 investors managing more than \$34 trillion in assets, nearly half the world’s invested capital.
- c) Ahead of COP25, [The 2019 Global Investor Statement to Governments on Climate Change](#), signed by more than 630 investors who collectively manage over \$37 trillion in assets, urged action that includes phasing out thermal coal power, ending subsidies for fossil fuels, and updating and strengthening nationally-determined contributions (NDCs) to meet the Paris Agreement. For a related article, see [LINK](#).

2) Rapid innovation in the area of Climate Solutions

There is unprecedented growth of innovative solutions that can help the world [mitigate](#) and [adapt](#) to climate change (Climate Solutions). These solutions are in various stages of development from early to fully mature. For the purposes of this concept note, early stage Climate Solutions refers to solutions that are yet available for sale. Fully mature Climate Solutions refers to solutions that are currently being sold on a substantial scale, such as standard photo-voltaic solar panels.

Some early stage Climate Solutions have very large potential to become game-changers for the world. For example, a team of scientists led by Dr. Yimin Wu from the University of Waterloo recently developed an [Artificial Leaf which converts CO2 to fuel \(methanol\)](#). When commercialized, this relatively low-cost technology could be implemented on a global scale and become a major factor for reducing carbon emissions. To view more information about this and other artificial leaf technologies, see: [Artificial Leaf and Related Technologies](#).

In addition to the artificial leaf technology, there are several new technologies that can convert hydrogen and CO2 to methanol and other useful products. For example:

- a) [A catalyst for sustainable methanol](#) by Fabio Bergamin, ETH Zurich, Phys.org, July 29, 2019. Scientists at ETH Zurich and oil and gas company Total have developed a new catalyst that converts CO2 and hydrogen into

methanol. Offering realistic market potential, the technology paves the way for the sustainable production of fuels and chemicals.

b) [Biofuels Could Reduce Greenhouse Gas Emissions By 96%](#), CleanTechnica, December 1st, 2019.

c) [New material captures carbon dioxide and converts it into useful chemicals](#), ScienceDaily, October 11, 2019. Summary: The captured CO2 can be converted into useful organic materials.

If artificial leaf technology can utilize the sun to produce fuel from CO2 at a significantly lower cost than can be done with fossil fuels, then it will no longer be cost effective to extract fossil fuels from the ground and refine them. If this becomes the case and artificial leaf is utilized on a global scale, a substantial reduction of fossil fuels extraction from the ground would occur.

D. Seizing the Opportunity: Facilitating the Flow of Funding into Climate Solutions

As a result, we believe there is a major opportunity to accelerate the flow of funding into Climate Solutions by introducing these solutions to concerned investors. To help seize this opportunity, ClimateSAN has developed an initiative with two streams to accelerate the development and scale up of Climate Solutions by introducing these Climate Solutions to wealthy investors. The first stream has been launched and focuses on proven, investment-ready solutions and the second stream, which focuses on promising early stage solutions, is expected to be launched in the near future.

1) First Stream: *Proven "Investment Ready" Climate Solutions*

Our team at [ClimateSAN](#) is working with faculty at Ryerson and York Universities to introduce companies with proven "investment-ready" Climate Solutions to wealthy investors and impact funds. We have submitted a proposal entitled "Development of Methods to Increase Funding for Scaling-up Climate Solutions" to an agency facilitating collaboration between universities and the private sector called [MITACS](#). Our proposal is based on our more detailed plan entitled "[Opportunity to Increase Funding for Development and Scale-Up of Climate Solutions](#)".

To maximize impact through this project, ClimateSAN is working to identify and prioritize very promising technologies and connect these companies directly to very high net worth (VHNW) investors.

ClimateSAN is starting with helping to obtain financing for Canadian companies that are "investment ready" and can scale quickly. After ClimateSAN demonstrates its approach with Canadian developed Climate Solutions, it plans to expand this approach to other solutions that have been developed in other countries.

2) Second Stream: *Early Stage Climate Solutions*

Many promising Climate Solutions are still at an early stage, which requires investors to take on higher levels of financial risk than with solutions that are proven and

“investment-ready”. This is an area where VHNW individuals can play a leading role. Fortunately, several billionaires are already doing so through a fund spearheaded by Bill Gates called [Breakthrough Energy Ventures \(BEV\)](#). In December of 2019, [Bill Gates announced the expansion of his Breakthrough Energy Coalition \(BEC\)](#), which is associated with the BEV fund, at an event in Paris. At the same event, Bill Gates and Richard Branson discussed the role billionaires can play in backing “long shot” or early stage ideas that aim to combat climate change.

Institutional investors have higher fiduciary responsibility and are limited in their ability to back “long shot” ideas but can invest in proven “investment ready” Climate Solutions. Therefore, if VHNW individuals invest in a range of early stage Climate Solutions and develop several of them into proven “investment ready” solutions, institutional investors can invest additional funding to further scale-up the implementation of these solutions.

Thus we are planning to implement a second stream of our initiative to accelerate capital allocation for the rapid development and scale-up of *early stage* Climate Solutions, by introducing organizations with these solutions to VHNW investors who are concerned about climate change. These VHNW investors represent a critical group to engage on Climate Solutions and can play a critically important role in this area.

E. Broad Support for Private Sector Funding of Climate Solutions

We expect considerable support for our approach since there is already broad support across the political spectrum in many countries for the development and scale-up of Climate Solutions funded by private investors. This compares to the opposition in several countries to a carbon tax, which is preventing substantial action on climate change.

F. After Political Consensus, Global Scale-up of Climate Solutions

Although no agreement has been reached by world leaders to implement adequate coordinated action on climate change, the news about this issue continues to become more alarming. As a result, we expect the public pressure to continue building substantially for coordinated climate action.

When this does occur, many countries will likely implement a range of incentives - including a global carbon emissions tax and an international carbon emissions credits trading scheme. This will help fund implementation of a wide range of Climate Solutions on a global scale. Therefore, increased investment now in a wide range Climate Solutions will enable a more rapid implementation on a global scale once a global agreement on carbon pricing and trading is achieved and implemented.

Several experts have indicated that transition to a low-carbon world presents an [unparalleled business opportunity](#) to investors. Many Climate Solutions will be scaled up substantially after global agreement on carbon pricing and trading is achieved and implemented. Therefore, early investors in these solutions will benefit greatly.

G. Promoting Equality and Shared Prosperity

When a full range of Climate Solutions are implemented on a global scale, these solutions could create benefits for everyone and help encourage equality and shared prosperity. Therefore, measures should be taken to help ensure that this transition is just and does create benefits for all.

Over the last few years, a growing number of very wealthy individuals have expressed concern about inequality. For example, see: [An Open Letter to the 2020 Presidential Candidates: It's Time to Tax Us More, Jun 24, 2019](#). These individuals may be interested to invest in development and implementation of Climate Solutions that can benefit the poor, such as solar-powered irrigation. Therefore, ClimateSAN plans to make a special effort to introduce selected Climate Solutions to these individuals.

H. Proposed Next Steps

To implement this initiative, we plan to undertake the following steps:

1. *Phase 1: Develop Our Model*
 - a. Produce a compelling package of materials, including a concise presentation and an enhanced version of our [existing explainer video](#).
 - b. Present this information to major organizations that may want to help ClimateSAN implement this initiative such as [World War Zero](#), [the Climate Mobilization](#), [the Tipping Point Fund](#), and [Countdown](#).
2. *Phase 2: Identify Climate Solutions and VHNW Investors*
 - a. Expand ClimateSAN's existing list of high-potential early-stage Climate Solutions that should be considered for rapid development and scale-up. Utilize indices such as [Drawdown](#) to develop categories of Climate Solutions and identify the most promising solutions being developed within each.
 - b. Expand our existing database of VHNW investors who are concerned about climate change.
 - c. Research wealthy individuals who have publicly expressed concern about inequality. For example, see: "[An Open Letter to the 2020 Presidential Candidates: It's Time to Tax Us More, Jun 24, 2019](#)".
3. *Phase 3: Accelerate Climate Solutions*
 - a. Develop and implement a detailed plan to facilitate investment into early stage Climate Solutions by VHNW investors. This will include introducing selected companies with potential high-impact early stage Climate Solutions to selected VHNW investors.

I. Conclusions:

- 1) The [2019 United Nations Climate Change Conference](#) or otherwise known as COP25 did not achieve needed results despite urgent need action, which has likely created more alarm amongst many of the very wealthy.
- 2) Emergency action is required on climate change and most of the money to finance this action needs to come from the private sector.

3) The following two recent developments are creating opportunity for substantial climate action:

- a) Many very wealthy individual and institutional investors, including a group that collectively manages over US\$37 trillion in assets, are demanding action on climate change.
- b) Currently there is rapid innovation that is creating new and improving existing Climate Solutions.

4) ClimateSAN is currently working to connect proven solutions to wealthy investors and is now proposing to also facilitate early stage solutions, such as [artificial leaf technologies](#).

5) Increased investment now in a wide range Climate Solutions will enable a more rapid implementation on a global scale once a global agreement on carbon pricing and trading is achieved and implemented.

J. Invitation to Participate

We welcome volunteers who are interested to help us implement this initiative, especially our section stream, which is to increase investment in early stage Climate Solutions. If you are interested please contact us at info1a@climatesan.org.

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