

The Year after Paris COP21:

progress on a path of challenge

By Walter Schindler & Niels Planel¹

This is an important moment in the world community's response to the challenge of climate change: On November 4, the Paris Agreement became effective as international law. The COP22 conference then opened in Morocco, and negotiators had the opportunity to review and assess the progress made since the Paris Agreement.

The Paris Agreement has now been signed by 193 nations and ratified or otherwise joined by 97 parties to the United Nations Framework Convention on Climate Change, representing 69% of global emissions, including both China and the United States.

What has escaped the attention of the media, especially in the USA, is the reality of the new Green Climate Fund that was launched in the last year and now is supported by signed commitments totaling thus far over \$10 billion USD of investment capital from 47 countries. In facing the future of the earth, investment capital is the primary strategic asset, and global cooperation is the necessary foundation of the solution.

Although there has been significant accomplishment from a historical perspective, success will be reassured by results and not by efforts. The harsh reality is that the first three months of this year were the warmest on record in the nearly 150 years after temperatures started to be recorded, and each year seems to be worse than the previous one.

If we look at the brief history of the industrial age in the long memory of the planet, we have consumed about two-thirds of the carbon budget of the planet, and the window onto the remaining third is closing. Many eminent scientists suggest that we have about 30 years to drastically reduce our emissions. To do so, the time is now. Greater efficiency is required across the total spectrum of energy from all sources. Alternative energy is no longer just an alternative.

The Paris Agreement

Meaningful progress in both capital and results is what the Paris Agreement should help accomplish. The climate conference in December 2015 was successful for at least three reasons:

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The two authors of this article met at the inaugural Yale Sustainability Leadership Forum in September 2016, led by Yale Professor Daniel C. Esty. (The views expressed here are those of the authors).

The first is the unprecedented goal for the nations to maintain temperatures at no more than a 1.5 Celsius degree rise above the pre-industrial era – a target strongly defended by those countries most vulnerable to climate change, namely the island states threatened by rising sea levels.

The second event of success is almost a miracle: 195 countries and the European Union have managed to agree on this!

Finally, the Paris Agreement wisely cast in stone the principle of regular monitoring of the pledges of all participating governments – every 5 years, starting in 2020.

2016: a year of international progress

Equally significant is the symbolism of the early legal effectiveness of the agreement on November 4th: the timing was ahead of the most optimistic predictions. As a reminder, this could happen only when 55 countries responsible for at least 55% of greenhouse gas emissions have ratified it. But much more has happened than expected: last month, in Montreal the member states of the International Civil Aviation Organization reached an agreement in near majority to limit emissions of the CO₂-rich aviation sector.

A similar trend occurred in an unlikely market: the historically resistant maritime sector. In October, the International Maritime Organization announced that the sulfur content of marine fuel should be limited to 0.5% in 2020, worldwide. And finally, in Rwanda, an agreement was also reached this fall on the elimination of hydrofluorocarbon gases.

[Hydrofluorocarbons (HFC's or "super greenhouse gases") are gases used for refrigeration and air conditioning and are known as "super greenhouse gases" because the combined effect of their soaring use and high global warming potential could undercut the benefits expected from the reduction of other greenhouse gases such as carbon dioxide. Used as refrigerants, they were introduced by the chemical industry to replace ozone-destroying CFCs (chlorofluorocarbons), which are close to being phased out by the Montreal Protocol. HFCs are 3,830 times more potent than CO₂ with a lifetime of 14 years.]

Moreover, many management teams have changed faces in 2016: With the Norwegian Erik Solheim appointed as head of UNEP, Mexican Patricia Espinosa to the UN Framework Convention on Climate Change (UNFCCC), the Portuguese Antonio Guterres as Ban Ki-moon's successor at the UN, and the Australian Howard Bamsey freshly selected as future Executive Director of the Green Climate Fund, a significant change of executive teams have happened in the international bodies that will work on implementing the details of the agreement.

Capital is now at the center of the battle for the future

During the COP22, a roadmap was to be developed for the implementation and realization of the goals of the Paris Agreement. In 2018, a collective review of the progress made so far

should occur to trigger negotiations for the COP in 2020, and again in 2023, a new revision should lead to a new round of negotiations for the COP of 2025.

The ambitious pledges and plans of the 195 governments naturally raise the question of their financing in the real world – and by extension, that of the private sector’s participation, including the financial industry, at a time the governments’ coffers appear to be in weak condition. For the record, the private sector accounts for two-thirds of global GDP; it is impossible to disregard private capital in the fight against global warming. On the contrary, private capital must move beyond the vague excuse of subjective “ESG” negative screening and into the front line of new and positive capital investment in sustainable innovation, greater energy and power efficiency, and the emerging area of retrofitting real estate projects to reduce greenhouse emissions from buildings and grocery stores and other structures. It has been well established for some time that real estate is the principal anthropogenic source of greenhouse gases. Innovative companies in Latin America, like PointVerde Energy Solutions in Mexico, have set an example for the rest of the world in profitable creative workable solutions in building retrofits.

BlackRock’s buy signal

In September, BlackRock, the largest asset manager in the world, hit the headlines by announcing that all investors should now consider climate change in their risk analysis, and shortly afterwards Blackrock has become the first major global firm to launch a thought-leading investment product to finance the creative solutions we are advocating. Blackrock is now at the forefront of creating the future of sustainable finance by channeling the strategic capital necessary for success.

The origin of \$100 billion a year by 2020

Let’s stay on the strategic issue of capital. In 2009, the British economist Nick Stern produced a study showing that it would take about \$130 billion a year to help developing countries finance their efforts. (Remember, the poorest countries tend to suffer the most from the phenomenon to which they contribute so little by comparison.) Then British Prime Minister Gordon Brown rounded the figure at \$100 billion to make it more memorable.

However, when compiling the numbers without bias from official sources, one soon realizes that it’s actually \$350 to 450 billion per year that are needed to fund the fight against climate change in developing countries. There is still a long way to go!

Governments are now aware of the challenge

This is where the birth of awareness of the dangers of climate change, especially among finance ministers – those who hold the purse strings – is crucial. The objective world leaders were made aware of over the last three years is that of a transition to a post-2020 low-carbon economy. Governments, including China, have come to realize that this is about their survival, and not just in environmental terms: Those who will be left behind will be

threatened with economic decline and marginalization. In fact, even Saudi Arabia announced a few months ago the establishment of a fund to enable economic diversification.

Entrepreneurs vs. climate change

Entrepreneurs face enormous systemic challenges in order to create and ensure the technology transition that we need: The capital needed to design, manufacture and market clean technologies is massive at entry and through all the cycles of growth; the profits they will generate are difficult to assess because the markets are extremely complicated and intertwined and the price of energy varies from year to year; finally, investors are reluctant to take risks for fear that they would invest in innovation that is quickly made obsolete by a new, cheaper and more efficient one.

The challenge is made all the more difficult because the total spectrum of energy is one of the world's most complicated subjects. For example, a yet little-known resource, methane clathrate, is spread all over the floor of the oceans and seems as plentiful as the rest of all fossil fuels ... combined! This extremely dangerous resource has already begun to be exploited by the Japanese, who have suffered from the Fukushima disaster and cannot rely on nuclear power to fuel their economy any longer. Clearly, fossil fuels are potentially cheap and abundant, and it's not based on their alleged scarcity that we can motivate ourselves to find clean alternatives.

A plethora of initiatives

The good news is, a lot of things are already starting to happen. The fight against climate change cannot happen solely at the state level, or be led by international organizations alone. Communities, associations, businesses and citizens around the world have begun to take their share of this global effort. In fact, 10,000 individual actions and 70 collective actions were recorded during the COP21, on the UNFCCC's website, including in the field of climate finance.

From the most modest to the most ambitious ideas, great changes are underway: While the tiny start-up "Power:On" is working on bringing electricity to a village in Benin, the International Solar Alliance, a coalition of 120 countries set up by India and France, is aiming at building the equivalent of 1 Terawatt of solar capacity by 2030 worldwide. A pro-renewable energy scheme in Africa has emerged, as well as an ambitious warning system for the island states, which should find its place within the World Meteorological Organization.

In June, more than 7,000 cities have decided to unite to form an alliance against climate change. And in this area, perhaps the most ambitious capital remains Copenhagen, which promises to become carbon neutral by 2025!

Finally, this spring, the American manufacturer Tesla announced that orders for one of its latest models of electric vehicles have exceeded 250,000 units in just days, enough to launch the production line and create anxiety for more traditional auto manufacturers.

A new era

Today, despite all the efforts made so far, we still are on a path that will lead us to a warming of about 3 degrees Celsius, dangerously above the 1.5 goal set in the agreement.

But things are changing. Peabody, the largest coal company in the US, filed for bankruptcy during the spring, explaining that the price of coal and extraordinary pressures on the industry condemned the company to bankruptcy. For many years the coal industry could have invested a small portion of their profits in a much cleaner and safer and more profitable future!

At the same time, and even according to conservative estimates from the US government, solar, wind and natural gas are expected to have by far their best year in the United States in 2016, constituting the majority of new electric capacity installations. Solar, in particular, should dominate this competition.

It remains to be seen what the new US President will actually do when he focuses on the obligation to implement the Paris accord. Now that policy has been decided and approved by a vast majority of nations, and given the prominent role the private sector is expected to play in the fight against climate change, America should review and confirm its commitment to create with other nations a transformational economic opportunity of sustainable innovation and job creation as well as environmental stewardship of our planet.

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The Yale Sustainability Leadership Forum is a three-day program at Yale University that explores sustainability as an overarching framework for life in the 21st century. An integrated policy concept, sustainability diverges from approaches to environmental protection and economic development that were pursued in the 20th century. The program focuses specifically on the megatrends distinguishing sustainability from its 20th century precursors. Team-taught, the Forum is organized around modules that each provide in-depth topical study, and will bring together a diverse set of thought leaders, industry practitioners, policy experts, and scholars working on the leading edge of sustainability. For more information, visit sustainability-forum.yale.edu.