



APCEL Climate Change Adaptation Platform

Will the Paris Agreement provide positive or negative outcomes for developing countries?

by

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Introduction

On 12 December, 2015, the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) finally adopted the Paris Agreement. After opening for signature at the UN from 22 April, 2016 to 21 April, 2017, the Agreement shall enter into force 30 days later upon the 55th party depositing their instruments of ratification, provided that the Parties ratifying this Agreement cover at least 55% of the global greenhouse gas emissions. To date, the new agreement has triggered critics to express disappointment that its contents omit concrete mitigation obligations and have only limited quantitative indicators. However, advocates have emphasized the Agreement's contribution to aggressively tackling climate change by re-emphasizing the sustainable system, focusing on adaptation, and endeavoring to place great emphasis upon transparency.

The UK's Energy and Climate Change Secretary, Amber Rudd, commented on Paris Agreement that: "We have witnessed an important step forward, with an unprecedented number of countries agreeing to a deal to limit global temperature rises and avoid the worst impacts of climate change." For the first time, the world had fashioned an agreement, the Paris Agreement, allowing it to be in line with its goal of controlling most of its carbon emissions; thus, despite criticism and disappointment, the Agreement is still being recognized as a milestone in our global battle with climate change.

The new greenhouse gases (GHG) emission reduction agreement

After the Rio Declaration in 1992, the world started to consider the issue of climate change, which subsequently facilitated the establishment of the UNFCCC. The Kyoto Protocol was later adopted in 1997, demonstrating the determination to reduce global carbon emissions. However, after the adoption of the Protocol, the difficulty of sustaining sufficient energy supply and the slow pace of industrial transformation revealed the reality that carbon reduction is not an easy goal to achieve. Consequently, the UNFCCC, after 20 years of endeavor, was unable to efficiently reduce global emissions.

The Kyoto Protocol was not equipped to bring desirable mitigation outcomes, since only the Annex 1 countries were legally bound. Hence, the 13th session of the Conference of the Parties (COP 13) in 2007 further adopted Bali Road Map to set the

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tone for future discussions on climate change, including mitigation, adaptation, technology, and finance. Unfortunately, COP15, convened in Copenhagen in 2009, did not achieve much progress along the lines of the Bali Road Map; instead, discussions at the session intensified the conflict between developed countries and developing countries. Developed countries claimed that developing countries should also bear responsibility for mitigation, while developing countries argued that developed countries were in no position to make this request since they had themselves failed to comply with the Protocol in the first instance. The world came to realize the difficult reality of emissions reduction.

After the disappointing Copenhagen session, the gap between developed countries and developing countries was considered a key barrier that had to be removed to enable the world to progress from its past failures. For that purpose, the Warsaw Loss and Damage Mechanism was established at COP 19 in 2009 to attempt to bridge this gap. Taking their lessons from COP 15, the U.S., China, and France cooperated to ease the conflict between the Global North (developed countries) and the Global South (developing countries). In addition, the Ad Hoc Working Group on Durban Platform for Enhanced Action (ADP) restructured its approach to combat climate change from its previous top-down model to a bottom-up framework by asking the Parties to submit each of their Intended Nationally Determined Contributions (INDCs) to enable collective determination of the Parties' efforts and ambitions. The total INDCs submissions, from 188 Parties and covering 98% of global carbon emissions, was a milestone demonstrating that the world might be able to control emissions. If the INDCs can be collectively and fully implemented, this would help to keep the world's temperature rise within 3 degrees Celsius. Even though this result would fall below the goal of maintaining temperature change within 2 degrees Celsius, it is nonetheless a significant advance from the predicted 4 or 5-degree increase.

Without legally binding effect, any agreement may be a mere political statement, but at least the Parties had clearly exhibited the possibility of mitigation. After all these efforts, the way towards the Paris Agreement was finally paved.

At the Paris Conference, the industrialized countries demanded that the developing countries be legally bound by the mitigation obligations under the Agreement, in return for which the developing countries required financial support commitments from the industrialized countries. Once the financial issue was raised, numerous conflicts ensued, including, for example, adaptation, technology transfer, Loss & Damage, and the survival of Small Island Developing States (SIDS) & Least Developed Countries (LDCs). There were various issues that the Paris Agreement had to address, including how to ensure the achievement of the 2 degrees Celsius (or 1.5 degrees Celsius) commitments. The Parties recognized that the reduction plan can be implemented only under a highly transparent standard, the establishment of which is still pending. So one of the core issue of the discussions at COP21 was how to ensure the transparency of Parties' behavior with legally binding (and enforceable) powers.

It is worth noting that the Paris Agreement is a historic turning point in the world's consumption of fossil fuels. The Agreement demonstrates that the goal of the Parties is "to reach global peaking of greenhouse gas emissions as soon as possible," and "to undertake rapid reductions thereafter...to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of

this century..."(Article 4.1). In essence, the Paris Agreement strengthened the long-term temperature rising control of the Cancun Agreement (limiting global warming to less than 2°C) by granting it legal effect, and established a new target: "Holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C." The goal of net-zero emissions will also accelerate the global effort to decrease carbon emissions and stop the usage of fossil fuels.

Financial issues

In the last 20 years, financial issues have always been a cause of impasse in the UNFCCC's discussions. While financial support from the industrialized countries would assist the other countries to develop low carbon infrastructure and to enhance their adaptation capacity, the Agreement unavoidably encountered the difficult problem of how to balance the developing countries' rights to pursue economic development and the liability of the industrialized countries to financially support them. There was no consensus in terms of the funding ratio, funding period, and the process of funding, all of which certainly require deeper discussion in the future. Fortunately, Article 9.3 of the Agreement provides that "Such mobilization of climate finance should represent a progression beyond previous efforts." In essence, the Agreement provides for a trend of annually increasing climate financing. Unlike its previous version, the Agreement deleted contents concerning "South-South Investment," but added provisions that encourage the developing countries to aggressively contribute to climate finance.

After the discussions, the negotiators finally captured the 100 billion as a floor of the annual goal in words in the non-binding Decision text, and the annual goal shall be set before 2025 COP 31. Simultaneously, on the basis of helping the developing countries to address the adaptation issues, all of the countries ought to collectively promise to reduce emissions. However, the final version of the Agreement, succumbing to pressure from the U.S., changed the text from "developed country Parties "shall" provide financial resources" to "developed country Parties should continue "to take the lead" in mobilizing climate finance." Moreover, the Agreement only requests the Parties to implement this provision by domestic legislation, which has led the financial issue becoming even more complicated.

Meanwhile, the Agreement emphasized the Green Climate Fund (GCF) as a key provider of predictable financial resources in the post-2020 framework. The GCF was established with the objective of mobilizing climate finance to support scaled-up mitigation and adaptation actions in developing countries². As an operating entity of the Financial Mechanism of the UNFCCC, GCF's target is to facilitate financial contributions from both the public and private sectors to support developing countries in implementing their ambitions and climate strategy. The GCF focuses on equal allocation between mitigation and adaptation action. Article 9.4 encourages that financial resources should "balance between adaptation and mitigation, taking into

² "Green Climate Fund and the Paris Agreement," at http://www.climatefocus.com/sites/default/files/20160214%20GCF%20and%20Paris%20FIN_0.pdf (last visited 31/03/2016).

account country-driven strategies, and the priorities and needs of developing country Parties, especially...least developed countries and small island developing States." For that reason, the GCF should allocate its funds mainly towards LDCs and SIDs.

Another area that is supported by the Green Climate Fund is technology innovation and transfer. According to Article 10.5, Technology Mechanisms and Financial Mechanisms support efforts on accelerating, encouraging and enabling innovation, especially in the early stages of the technology cycle of developing countries.

Results-based finance is also a specific concern of the Agreement: Article 5.2 ("Results-Based Finance") requires robust systems to ensure that money will be deployed only after achievement of the reduction. "For example, to receive money directly from GCF, countries need to show that they have the capacity to meet set fiduciary standards as well as environmental and social performance standards," managing director of the consulting firm Perspectives, Axel Michaelowa, recently explained.³

The removal of legally binding text

To avoid Congressional oversight in the U.S., the final version of the Agreement omitted almost all the legally binding text (such as "developed country Parties SHALL provide financial resources") and quantitative targets (such as quantization of emission reduction targets). Because the U.S. plays a pivotal role in tackling global climate change, it is considered preferable for the Agreement to omit quantitative targets rather than be adopted without the participation of the U.S. Some critics argue that omitting legally binding effects from the Agreement not only increases the difficulty of ensuring compliance with its objectives, but also affects the nature of the Agreement. However, such arguments may not be fair. According to the definition of Treaties in the Vienna Convention on the Law of Treaties, " 'ratification', 'acceptance', 'approval' and 'accession' mean in each case the international act so named whereby a State establishes on the international plane its consent to be bound by a treaty." Also, legally binding effects may discourage the Parties' willingness to propose or support more ambitious commitments, and increase the possibility of non-compliance with the Agreement. After reaching the compromise, the Parties agreed to adopt domestic legislation to implement their INDCs with highly transparent regulations to monitor compliance with mitigation. In conclusion, the final version of the Agreement exhibits not only compromise, but also the wisdom of the Parties.

The Paris Agreement represents the start of a long term emissions reduction process. Under the transparency principle, all the participating countries agreed to annually submit new activities to tackle climate change from 2020, and the provision requiring these submissions is proposed to remain in effect until the original target is achieved.

The action objectives of each country are called their "Nationally Determined Contribution"(NDCs). According to Articles 4.2, 4.4, and 4.9 of the Agreement, each

³ "Results-Based Finance for Climate Action", at <http://newsroom.unfccc.int/financial-flows/clean-development-mechanism-model-for-results-based-finance/>(last visited 04/07/2016).

Party shall submit an NDC every five years, and developed country Parties should continue taking the lead by implementing economy-wide absolute emissions reduction targets. Article 4.3 also requires that each Party's successive NDC should represent a progression beyond the Party's then current NDC. Through the domestic legislative process, each Party's NDCs will be legal binding within its jurisdiction, which may also allow the Parties to implement their NDCs through various flexible processes. For example, the U.S. can use an executive order to implement their NDC, and South Korea can implement their ambitions through their Framework Act on Low Carbon Green Growth. It is generally believed that, through domestic legislative processes, the public and the environmental groups of all the participating countries may be able to pressure or lobby their domestic governments to incorporate their targets into their respective national legal systems, allowing the achievement of emission reduction targets committed to within the INDCs.

Other actions resulting from COP21

After ten consecutive days of negotiation, the Paris Agreement was finally adopted at the conclusion of COP21, along with some other environmentally friendly actions taken or promised throughout the conference period.

Through the flagship Mission Innovation initiative launched by 20 leaders from some of the biggest global economies, investment for innovation in low carbon technology and clean energy research was almost doubled, raising the possibility of improving future climate change ambitions and accelerating the development of low carbon energy technology.⁴

Meanwhile, through the initiation of the International Solar Alliance of 120 countries, 100 billion U.S. dollars will be mobilized to support the significant deployment of renewable energy. The G7 Africa Renewable Energy Initiative will also start to build 300 GW of additional renewable energy generation at 2020 with over 10 billion dollars of investment from the private sector.⁵

Some of the largest companies and investors around the world have committed to invest billions of pounds in the low carbon economy, including Unilever, Marks & Spencer, and Google. In addition, some of the sectors –for example, the insurance industry – collectively invest over 100 billion U.S. dollars into smarter risk and resilience projects. The Dutch pension fund has also committed to decarbonizing its listed shares portfolio – currently amounting to 100 billion Euros– by 25% by 2020.⁶ Four hundred and fifty CEOs from 65 countries across 30 business sectors have committed to reduce emissions by 93.6 million metric tons of CO₂, more than the

⁴ Mission Innovation: Accelerating the Clean Energy Revolution, at <http://mission-innovation.net/joint-statement/> (last visited 04/07/2016).

⁵ “India and France Launch International Solar Energy Alliance at COP21,” at <http://newsroom.unfccc.int/clean-energy/international-solar-energy-alliance-launched-at-cop21/> (last visited 04/07/2016).

⁶ “Google, Marks & Spencer, Unilever, Philips, Ikea and world policymakers share collective drive to power economy with renewables,” at <http://www.theclimategroup.org/what-we-do/news-and-blogs/google-marks-and-spencer-unilever-philips-ikea-and-world-policymakers-share-collective-drive-to-power-economy-with-renewables/> (last visited 04/07/2016)

annual carbon emission of Peru. Furthermore, 79 CEOs representing over 2 trillion dollars in revenue have joined the Alliance of CEO Climate Leaders and committed to reduce their environmental and carbon footprints, while also setting emission reduction targets for their companies.⁷

During the period of COP21, Canada, Denmark, Finland, France, Germany, Ireland, and Italy all announced increased commitment to provide financial support, in addition to the 11 developed countries' commitment to contributing 284 million dollars to the Least Developed Countries Fund (LDCF), aiming to help the most vulnerable countries in their adaptation sector.⁸

The UK supported new OECD rules to restrict the export guarantees concerning new coal power plants built overseas. Also, the UK committed to phase out unabated coal by 2025, making the UK the first major global economy to commit to such a plan.⁹ More than 30 countries, including the UK, acknowledged that fossil fuel subsidies should be removed; also pursuing this goal, hundreds of businesses and organizations continue to urge the scrapping of fossil fuel subsidies. The phasing out of fossil fuel subsidization could help to cut 10% of GHG emissions by 2050.¹⁰

Cities and regions from five continents representing almost one-fifth of the world's population have launched a five-year vision, inviting more cities and regions to implement their Action Plan and climate objectives. Their vision also focuses not only on building the resilience of cities and regions, with particular attention on vulnerable residences, but also to financial flows and supporting partnership initiatives among them.¹¹

These actions imply that the countries concerned might have sufficient capability to fully implement the Paris Agreement with a rapid increase in ambition in the near future; in these circumstances, keeping the increase of global temperature below its 2 degrees Celsius goal may be possible.

Signing Ceremony for the Paris Agreement and Joint Statements

On April 22, 2016, the UN convened a high-level ceremony to mark an international push for signing of the Agreement. The Paris Agreement ceremony closed with a significant 175 nations signing the Agreement, including 15 who officially joined and

⁷ "Global Business Community Comes to Paris with Solutions for Taking On the Climate Challenge Across the Board," at <http://newsroom.unfccc.int/lpaa/business/lpaa-focus-on-business-global-business-community-comes-to-paris-with-solutions-for-taking-on-the-climate-challenge-across-the-board/> (last visited 04/02/2016)

⁸ "\$248 USD million pledged to GEF climate fund for most vulnerable countries," at <https://www.thegef.org/gef/node/11532> (last visited 03/25/2016).

⁹ "UK to Shut Down All Coal Power Plants by 2025, But Will Remain Fossil Fuel Dependent," at <http://ecowatch.com/2015/11/19/uk-shut-down-coal-plants/> (last visited 03/25/2016).

¹⁰ "COP21: Time to end fossil fuel subsidies," at http://www.theecologist.org/blogs_and_comments/commentators/2986487/cop21_time_to_end_fossil_fuel_subsidies.html (last visited 03/30/2016).

¹¹ "Cities & Regions Launch Major Five-Year Vision to Take Action on Climate Change," at <http://newsroom.unfccc.int/lpaa/cities-subnationals/lpaa-focus-cities-regions-across-the-world-unite-to-launch-major-five-year-vision-to-take-action-on-climate-change/> (last visited 04/07/2016).

more than ten expressing their intent to join as early as possible.¹² Indeed, the triumph of the UN drive had been endorsed by the participating 130 countries, who have confirmed their intention to attend the signing ceremony, with French President Francois Hollande – leader of one of the world’s largest economies– expressively affirming his willingness to attend.¹³ After signing the Agreement, each Party should fulfill its necessary domestic processes and deposit an “instrument of ratification, acceptance or approval” with the UNFCCC. Since there is no deadline for submission of such an instrument after signing the Agreement, it is uncertain how long the world may take to implement the full force of the Agreement. However, considering the urgency of the climate change challenge, it is highly recommended and urged that the Parties should act as soon as possible.

As the date of the signing ceremony approached, the U.S. and China issued a Joint Presidential Statement on climate change on 31 March, 2016¹⁴, confirming their intention to sign the Agreement on 22 April, 2016 and to take their respectively requisite domestic steps to join the Agreement as early as possible within 2016. Simultaneously, both countries encouraged other Parties to do likewise to enable the Agreement to enter into force at its earliest possible date. In addition, both countries also committed to cooperating to facilitate the implementation of the Agreement, seeking to harness the world's collective influence in the battle against the threat of climate change. The Presidents of both countries committed to take concrete steps to implement the commitments of their joint statement. Since the U.S. and China account for 40% of global GHG emissions, their joint commitment to the Agreement may facilitate reaching the emissions goal.

Following the U.S. and China’s joint statement, the BASIC countries – a bloc of four large newly industrialized countries, comprising Brazil, South Africa, India and China– also made their joint statement on climate change at their 22nd BASIC Ministerial Meeting on Apr 7, 2016.¹⁵ The BASIC ministers welcomed the adoption of the Paris Agreement and acknowledged that COP21 marked a milestone in global climate cooperation. Furthermore, the ministers declared that they expect to sign the Paris Agreement at the signing ceremony, with determined expression of their willingness to initiate necessary domestic processes for ratification, acceptance, or approval as soon as possible, while also urging other countries to do likewise.

Meanwhile, the ministers underlined the importance of the pre-2020 actions, and emphasized that the ambitions of the other pillars of the UNFCCC should be raised to pave the way for the implementation of the Paris Agreement. Simultaneously emphasizing the differences between the developed and developing countries,

¹² “WRI, LIVE BLOG: Signing Ceremony of the Paris Climate Change Agreement,” available at <http://www.wri.org/events/2016/04/live-blog-signing-ceremony-paris-climate-change-agreement>(last visited 04/05/2016).

¹³ “April 22 Paris Agreement Signing in New York, Over 130 Countries Confirm Attendance,” at <http://newsroom.unfccc.int/paris-agreement/april-22-paris-agreement-signing-ceremony-in-new-york/>(last visited 04/07/2016).

¹⁴ “U.S.-China Joint Presidential Statement on Climate Change,” at <https://www.whitehouse.gov/the-press-office/2016/03/31/us-china-joint-presidential-statement-climate-change>(last visited 04/07/2016).

¹⁵ “Joint Statement issued at the conclusion of the 22nd BASIC Ministerial Meeting on Climate Change New Delhi, India 7 April 2016,” at <http://envfor.nic.in/content/joint-statement-issued-conclusion-22nd-basic-ministerial-meeting-climate-changenew-delhi-ind>(last visited 04/07/2016).

implying that their obligations shall be differentiated accordingly, the ministers reiterated that each Party's NDC shall be country driven, comprehensive, and allow a longer time frame for the peaking of emissions for developing countries. The ministers also emphasized the transparency of the Paris Agreement to be essential, which will allow the Agreement to be implemented not only fairly but also efficiently. The important roles of financial support and technology transfer to developing countries are also emphasized by the ministers, reiterating innovation and international cooperation to be critical to challenge climate change. They also urged that the developed countries should scale up the level of their financial support with a complete roadmap to ensure ongoing compliance with the 100 billion dollar per annum objectives set for post-2020. In conclusion, the ministers agreed to further strengthen cooperation between the BASIC countries, and welcomed South Africa as the voluntary host of the 23rd BASIC Ministerial meeting in 2017.

The respective joint statements of the U.S. and China and the BASIC countries indicate willingness to sign the Paris Agreement and to implement the instrument globally. Despite the ongoing debates over the issues of finance and technology transfer, it is undeniable that the Agreement truly represents a significant progress in terms of the climate change challenge. With countries launching their initiatives and issuing aggressive statements on climate change prior to the signature ceremony, it seems that the future of low carbon emissions or even zero emissions may be achievable.

Necessary actions after the Agreement

Adoption of the Paris Agreement is a milestone, but it might prove to be inconsequential if Parties do not take the necessary actions to implement it. The Agreement sets the 2 degrees Celsius goal, but leaves the rules, guidelines, and processes pending for discussion and adoption in the coming months. The Ad Hoc Working Group on the Paris Agreement (APA) has been established to oversee these matters upon the adoption of the Agreement; its first operation has been scheduled from 16 -26 May, 2016. The APA is tasked with developing most of the new rules and guidelines during its multiple meetings in the following years under the auspices of UNFCCC bodies. The Subsidiary Body for Scientific and Technological Advice (SBSTA), for example, will be mandated to support the APA in developing guidance for the carbon markets system established under the Paris Agreement.

According to the APA's first session agenda, it is observable that some of the main topics will soon be subject to discussion.¹⁶ First, further guidance relating to NDCs shall be promulgated for countries' compliance so as to increase their ambitions. Second, subject to the requirements provided under the Paris Agreement, the APA will formulate modalities, procedures, and guidelines for the transparency framework. Since it will be difficult to ensure each country's fulfillment of their NDC commitments without a duly certified transparency mechanism, the APA must produce common rules, procedures, and guidelines to enhance the contemporary

¹⁶ "Ad Hoc Working Group on the Paris Agreement First session," at https://unfccc.int/files/bodies/apa/application/pdf/apa_1_provisional_agenda_-_advanced_version.pdf (last 04/01/2016).

UNFCCC MRV (Monitoring, Reporting, and Verification) system for these purposes. Meanwhile, taking into account the principle of common but differentiated and various national circumstances, the APA shall also be asked to provide flexibility to the developing countries. Third, the APA shall discuss the matters relating to the global stocktaking. According to the Agreement, every country should submit their NDCs to the UNFCCC every 5 years in order to achieve the long-term goals. When the emissions reductions are assessed in 2018, all countries will update their NDCs in 2020. After 2020, a regular "global stocktake" will take place every five years to ensure the ongoing implementation of the Agreement, including mitigation, adaptation, finance, and other supports, making it especially critical to the world's performance under the Agreement. Fourth, the APA is also expected to formulate modalities and procedures for the effective operation of the mechanisms to facilitate implementation and promote compliance.

However, the APA is not solely responsible for the implementation of the Paris Agreement; thus, the Parties are charged with several other responsibilities. Tracking climate finance is a good example and the core to the challenge of preventing green fraud. For that purpose, the Agreement tasked the SBSTA with developing the accounting rules for Parties to follow. Developed countries are required to report about the finances they have provided and mobilized every 5 years, in addition to the funding that they intend to provide. Capacity building is considered another necessary action for developing countries to be able to undertake climate mitigation and adaptation actions with sufficient finance and technology. The Agreement called for the establishment of a designated body for capacity building, also now-known as the Paris Committee on Capacity Building (PCCB), to ensure that all countries can meet their commitments. The PCCB will propose a four-year work plan, starting this year. Their work plan addresses the gaps and needs of developing countries, while ensuring coordination of efforts in capacity building activities.¹⁷

The meaning of the Paris Agreement to the developing countries

First, responding to the expectations of the private sector concerning carbon trading and carbon pricing, the Paris Agreement provides for continuous discussion of the market mechanism over the next 5 years. According to Article 6.2 and 6.3 of the Agreement, the Parties could use the internationally transferable units to achieve their NDCs, meaning that the trading of emission credits will be permitted. Under the market mechanism for credit trading, the Parties are allowed to build regional corporation systems to link their own national carbon trading market to the corporation systems that shall collectively facilitate mitigation globally through transnational credit trading. In addition, Article 6.4 of the Agreement also demonstrates the possibility of establishing a sustainable developing mechanism, where one Party may earn reduction of emissions from another Party by contributing to that other Party's mitigation. Such a mechanism may enhance the elasticity of the mitigation approach. With the vision of allowing participation to provide incentives for mitigation, and to avoid repeating the failure of the previous narrowly-defined

¹⁷ "After COP21: 7 Key Tasks to Implement the Paris Agreement," at <http://www.wri.org/blog/2016/03/after-cop21-7-key-tasks-implement-paris-agreement>(last visited 04/01/2016).

market, the trading units are now being referred to as "internationally transferred mitigation outcomes" (ITMOs) instead.

Under the sustainable developing mechanism, the GCF will initiate a new sustainable low-carbon financial system; furthermore, the operation of the Climate Technology Center & Network (CTCN) will promote and interact within a new international competitive market. Indeed, on the first day of COP21 in Paris, Bill Gates, Mark Zuckerberg, Jeff Bezos, and other entrepreneurs launched a union called the "Breakthrough Energy Coalition," declaring that, together, they intended to invest in the low carbon economy, green energy, and related technologies.¹⁸ Additionally, nearly 120 companies representing more than \$10 trillion in assets have recently signed the Montréal Carbon Pledge to measure and disclose the carbon footprints of their investment portfolios.¹⁹

Moreover, every country in COP21 has vowed to double its Research & Development budget over the next five years. It demonstrated to us that not only have states started to acknowledge the possibility of green energy, but the splendid future of the green energy market has also been well, and increasingly, recognized by the private sector. The development of green energy has the potential to bring the climate issue from international political conflicts into international transactions, cooperation, and finance, which by its nature is an inevitable international trend. To date, almost every country has cast its eyes upon the development of green energy by investing generously in research into it. Moreover, as the private sectors increasingly realize the profitability and possibilities of the green energy industry, one may foresee the creation of a great market for this industry in the near future. It is thus essential for the developing countries to strive actively to take this opportunity to develop in accordance with this trend, without missing the chance to ride the new wave of economic growth.

Furthermore, according to Professor Robert Stavins of the Belfer Center for Science and International Affairs (Harvard University), the impact of the Paris Agreement might be huge and indirect²⁰. Nearly 40 countries have promised to reform fossil fuel subsidies by committing to ultimately fully abolish subsidies on fossil fuels. By doing so, these countries created a critical global trend, echoing the appeal of several environmental groups, to remove subsidies on fossil fuels. For this to happen, the Parties may shift to natural gas as a transitional measure while gradually adopting their new standards of energy efficiency.

Consequently, in some form, the competitiveness of the enterprises of all the Parties will be affected in the future. The example set by the EU demonstrates that they are capable of creating incentives to navigate enterprises start adopting green energy, which might trigger non-tariff barriers for international trade. This is a crucial topic,

¹⁸ "Introducing the Breakthrough Energy Coalition," at <http://www.breakthroughenergycoalition.com/en/index.html> (last visited 03/30/2016).

¹⁹ "Montréal Carbon Pledge, Report on Batirente Investment Portfolios Carbon Footprint," at http://www.batirente.qc.ca/public/files/Montr%C3%A9al%20Carbon%20pledge_divulgarion_finale_anglais.pdf (Last visited 03/30/2016).

²⁰ "Professor Robert Stavins on the Paris Agreement," at <http://www.hks.harvard.edu/news-events/news/articles/stavins-cop21-blog-paris-agreement> (last visited 03/30/2016).

especially for the developing countries, since it may damage their economies if they become barred by such barriers from accessing the substantial EU Single Market. Moreover, the Parties to the Paris Agreement might also refuse to import carbon-intensive products, thus posing an even larger threat to the developing countries. Therefore, it is understandable that mitigation is no longer a mere political or moral debate, but has also become a serious economic issue inextricably linked with the future prospects of developing countries.

Future developments

Nowadays, the whole world is adjusting its energy structures to mitigate carbon emissions, even in some developing countries that are, by their nature, highly dependent on energy imports. Facing the severe challenge of climate change, energy composition and consumption are considered the key issues for developing countries to focus upon first. It is inevitable that the consumption of energy by developing countries will only continue to balloon with its growing economy and industries, which makes the composition of energy critical. In essence, how to share responsibility for carbon reduction fairly across each sector's energy usage is of equal importance to the issue of expenditure of resources on green energy development and industrial transformation for the developing countries.

Rising sea levels and resource shortages, among other climate impacts, may increase the urgency and difficulty of mitigation of carbon emissions in the developing countries in the future. After the issue of energy composition and consumption, developing countries should subsequently review their energy pricing policies, especially in the case of fossil-fuel-dependent countries. In the short term, raising the price of fossil fuels, thereby increasing the cost of consuming energy, may catalyze the transformation of energy, in addition to market and industries; conversely, lowering the price of energy may lead to high emission behavior for both people and businesses. However, raising the costs of energy consumption may also cause short-term economic losses, which may be reduced if national governments establish financial support systems and allow the successful transformation of industry to be achieved.

As Greenpeace's International Executive Director Kumi Naidoo observed, "History is waiting in the wings, and we're standing on the right side of it."²¹ Will the world, whether developed or developing countries, choose to stand on the right side? We sincerely hope that the answer is affirmative.

²¹ "The End of Fossil Fuels Is Near," at <http://truth-out.org/buzzflash/commentary/the-end-of-fossil-fuels-is-near> (last visited 03/30/2016).