



Carbon Market Crossroads

New Ideas for Harnessing Global Markets to Confront Climate Change

Nigel Purvis, Samuel Grausz, and Andrew Light April 2013

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Introduction and summary

Scientists now believe that absent a major change of course, the planet will warm 4 degrees Celsius by 2100.¹ Climate change on that scale would trigger severe economic, environmental, and social disruptions. The global community would become more fractured and unequal than today, and human suffering on an unprecedented scale could ensue, according to the World Bank.

Nations are negotiating in the United Nations a new global climate agreement, but that treaty may not enter into force until 2020. While such an agreement is essential, the international community must ramp up climate action now—not at the end of the decade. Stimulating much stronger climate action would require creating real political will—a sense of purpose that simply does not exist today. Although not a panacea, this report examines the contributions *global* carbon markets—defined here as the buying and selling of climate-change securities earned by reducing greenhouse-gas emissions in developing nations—could make to increasing the world’s ambition in addressing climate change.

To date, global carbon markets have played a key role in accelerating climate action while mobilizing billions of dollars in private-sector investment, encouraging economic growth, and helping to alleviate poverty. These markets have spread the revolutionary idea that all countries and communities benefit from fighting climate change and that domestic policies such as “pricing” carbon make economic sense. In the process, however, these markets have failed in serious ways including giving credits for questionable emission reductions and creating slow and opaque approval processes that have been tarnished with apparent conflicts of interest. The world’s largest carbon markets, moreover, face severely collapsed prices and a crisis in confidence. But these failures and crises should not obscure the markets’ more important legacy and opportunities for impact.

With the right political commitment and much-needed reforms, global carbon markets have the potential to deliver outsized environmental and economic benefits in the coming years. To harness these benefits, the international community should take the following concrete actions.

TABLE 1
Summary of recommendations

Recommendation		Action
1	Emergency climate summit	The World Bank and the International Monetary Fund should convene a meeting of world leaders at the end of 2013 to agree on new measures to avert a climate catastrophe with a strong emphasis on using carbon markets.
2	Invest in carbon markets	Countries should make a political commitment to increase demand for global carbon-market credits, either by setting up a market-stabilization fund or by pledging to purchase a minimum quantity of credits from developing nations.
3	Responsible energy	Countries should ensure responsible development of necessary fossil fuels by carrying through on past pledges to eliminate harmful fossil-fuel subsidies—redirecting some of the revenues to global carbon markets—and by requiring oil companies to set aside revenues for drilling in new and high-risk areas to support carbon markets.
4	Strengthen climate goals through markets	Europe should encourage other countries to take more ambitious climate action by committing to reduce its emissions 45 percent below 1990 levels by 2030 and meeting that commitment in part through global carbon markets.
5	Empower consumers	Socially responsible technology entrepreneurs should capitalize on public concern over climate change by using social media and innovative online marketing to help consumers directly finance emission reductions abroad.
6	International carbon market coordinating body	Countries should establish a new body to encourage proliferating carbon markets to converge on the same high standards and to help nations link these markets.
7	Governance reforms	Carbon-market regulators should undertake reforms to improve their credibility, including increasing transparency, creating appeals mechanisms, streamlining approvals, and adding environmental safeguards.
8	Learning-by-doing	Countries should use carbon markets to enable learning-by-doing by pioneering scaled-up market transactions covering entire economic sectors rather than small projects only.

Over the next few pages, we describe the legacy of international carbon markets. We then discuss where those markets are likely to go in the coming years and how the above-mentioned recommendations can further make use of international carbon markets to fight climate change.

Legacy of global carbon markets

Over the past decade most news stories about international carbon markets have been exceptionally negative. A 2012 front-page headline from *The New York Times* is perhaps typical: “Profits on Carbon Credits Drive Output of a Harmful Gas.”² Similar stories alleging fraud, inefficiency, and conflicts of interest in the global carbon markets have run in *The Wall Street Journal*, *The Washington Post*, *The Financial Times*, and *The London Telegraph*.³

Not surprisingly, this unflattering coverage has led many informed observers to believe that international carbon markets are fatally flawed and environmentally damaging. While some of the criticisms have merit, they obscure a far more interesting, surprising, and important set of truths: International carbon markets have had an extraordinarily positive impact on global climate action, while delivering important sustainable-development benefits for local communities. These markets represent perhaps the single-most-important policy innovation since international climate cooperation began more than 20 years ago.

What drives this gap between perception and reality? Climate policy and carbon markets have only recently emerged, and as a consequence, people find it hard to place them in the larger picture. In other areas of modern life, where we have more direct personal experience, we can put crises in perspective and call for targeted responses. We react to massive home mortgage fraud, for instance, by demanding better regulation and accountability rather than calling for an end to home mortgages. We understand that Ponzi schemes and excessive risk taking on Wall Street require more transparency and better oversight rather than rejecting financial markets altogether. We understand the benefits of each of these systems—that mortgages have helped hundreds of people achieve their dreams of home ownership and that functioning capital markets have spurred economic growth and raised living standards around the world. In other words, we can place these scandals in an appropriate context. Yet when it comes to innovative climate solutions such as international carbon markets, we lack that broader context and therefore jump to unwarranted conclusions.

For much of the past decade, global carbon markets have been synonymous with the Clean Development Mechanism, or CDM. This mechanism launched around 2005 with the Kyoto Protocol—the global legally binding agreement of emission reductions finalized in 1997 and reauthorized in December 2012 for another eight years. The CDM enables emission-reduction projects in developing nations to sell carbon securities to developed-country polluters. Under the mechanism, developed-country purchasers are allowed to offset their emissions and developing-country sellers gain new investment, technologies, and livelihoods. The CDM has been the primary global credit issuer with its credits representing 88 percent of global carbon-market transactions in 2004⁴ and 95 percent in 2011.⁵ These figures, of course, don't include larger regional carbon-market transactions such as Europe's emissions-trading program. The remaining balance of global transactions involves credits from the other smaller carbon markets created under the Kyoto Protocol or credits created by private issuers known as the “voluntary market.” These voluntary transactions are not part of the Kyoto Protocol and therefore are not subject to its mandatory emission limits.

Transformational change

Global carbon markets, most notably the Clean Development Mechanism, have helped to accelerate climate action around the world. They have, moreover, simultaneously mobilized billions of dollars in private-sector investment, encouraging economic growth and helping to alleviate poverty. These somewhat unconventional claims deserve careful analysis.

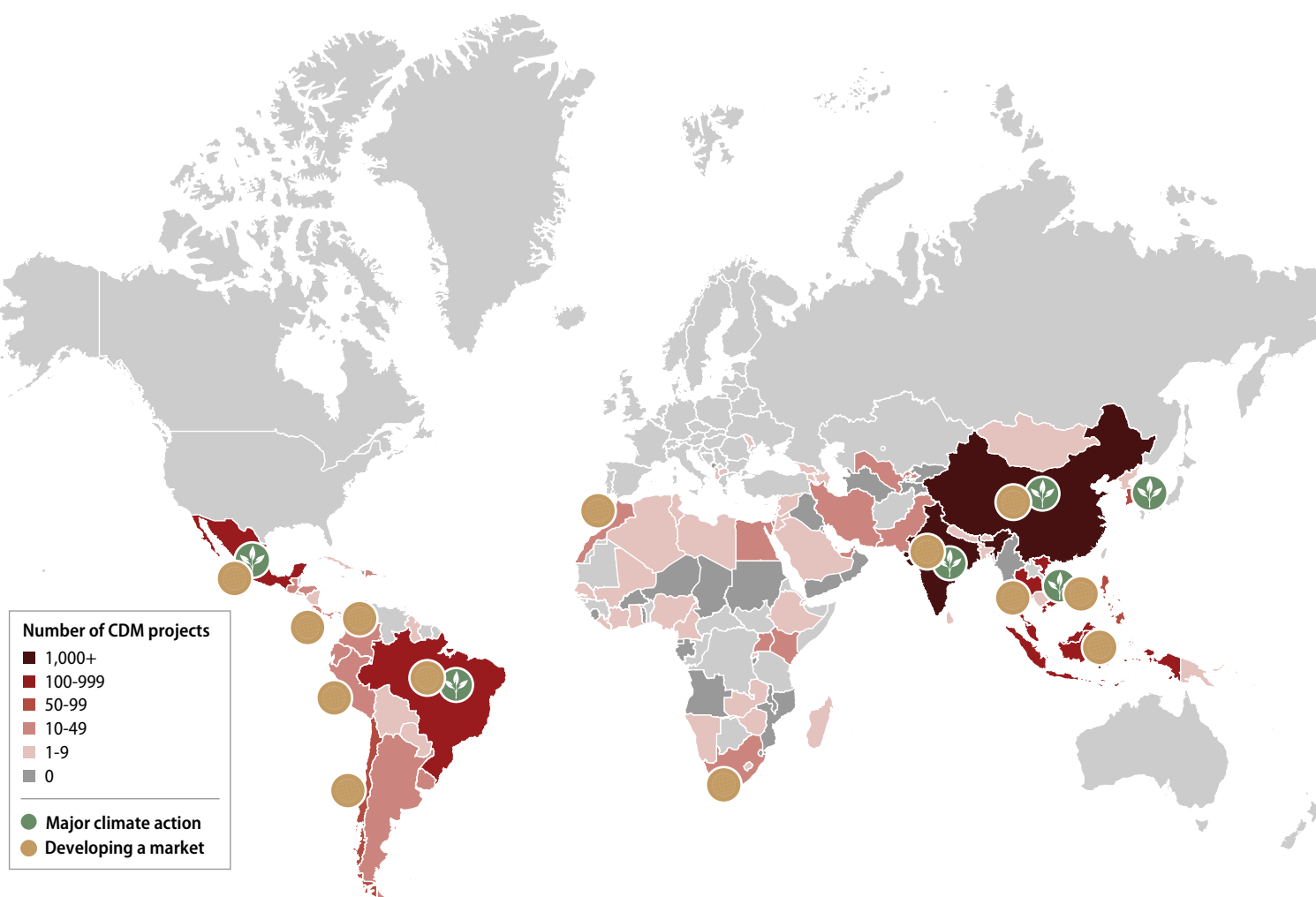
Accelerating new climate action in developing nations

International carbon markets have helped developing countries discover their own potential to abate climate pollution, which in turn has encouraged and enabled these nations to adopt more ambitious climate policies. The CDM has supported 6,556 carbon market projects and \$356 billion in investments in emission reductions.⁶ These projects have helped to create thousands of climate entrepreneurs and elicit millions of dollars in government spending on climate policies and better climate regulators. These projects have also trained a much broader group of stakeholders and communities to organize around carbon-market projects and advocate for emission reductions. Indeed, each of the 10 developing nations that participated most actively in global carbon markets over the past decade are today out front experimenting with new, more ambitious climate policies, as illustrated by Figure 1.

Why is the correlation between experience with the CDM and climate-policy leadership so strong? To be sure, there was some degree of self-selection. Countries with the political will and capacity to lead on climate change also had the ability to make the most out of the CDM. Yet that is not the entire story. By empowering businesses, governments, and communities, carbon markets have helped to accelerate the important actions by these countries.

FIGURE 1
Carbon markets and climate action

Top developing-country carbon market project hosts and their new climate policies



Sources: UNEP Risoe Center, Vietnam Bridge, US Climate Action Network, Searle, Helmy⁷

TABLE 2

Relationship between carbon-market experience and new climate action

	Country	Number of CDM projects	Investments supported (\$ billions)	Climate action
1	China	3,048	\$202.2	Seven municipal and regional emissions-trading systems are being implemented covering more emissions than South Korea.
2	India	1,197	\$48.5	Renewable energy and energy- efficiency trading programs were implemented.
3	Brazil	269	\$5.4	An emissions-trading system in Sao Paolo was implemented and a national system is under consideration.
4	Vietnam	231	\$6.4	A national emissions-trading system is being implemented.
5	Mexico	171	\$8.9	National climate law was passed with potential for a national emissions-trading system.
6	Malaysia	131	\$1.4	A commitment to reduce emission intensity by 40 percent by 2020 relative to 2005 was made.
7	Indonesia	124	\$6.7	A commitment to reduce emissions 41 percent below business as usual by 2020 was made, and an emissions-trading system is in development with the World Bank.
8	Thailand	114	\$2.0	An emissions-trading system is in development with the World Bank.
9	South Korea	86	\$1.9	A national emissions-trading system capping 60 percent of emissions is being implemented.
10	Chile	78	\$3.1	A commitment to reduce emissions 20 percent relative to 2007 by 2020 was made, and an emission-trading system is in development with the World Bank.

Sources: UNEP Risoe Center, Vietnam Bridge, US Climate Action Network, Searle, Helmy⁷

China best demonstrated the positive transformational impact of the Clean Development Mechanism. After a cautious beginning, China embraced the CDM and soon became its largest project supplier—accounting for 52 percent of the market in 2012.⁸ To date, China has hosted 3,480 projects worth \$220 billion in investments.⁹ The huge volumes of CDM projects helped Chinese companies become familiar with clean technologies such as wind power and capturing methane from landfills.¹⁰ China now has more wind-electricity generation capacity

than any country.¹¹ The Chinese government simultaneously leveraged the CDM to bolster domestic regulatory capacity by taxing Chinese CDM projects, raising \$1.5 billion by the end of 2011,¹² and then used the funds to plan and support domestic climate policies.¹³ Most notably, the Chinese government developed a series of state-sponsored exchanges for CDM credits that became a basis for learning about emissions trading from U.S. and European partners.

The Chinese government, building on its foundational experience with the CDM, launched a remarkable domestic emission-reduction effort. The government is piloting seven new state and municipal emissions-trading systems that will collectively put a ceiling on more greenhouse-gas emissions than South Korea produces and will represent the second-largest such system in the world.¹⁴ The national carbon exchanges created in these countries to trade CDM credits will likely oversee parts of these new domestic emissions-trading systems.¹⁵ China also announced plans to use these local trading systems as a basis for a larger national emissions-trading system beginning in 2015.¹⁶ The Chinese government also started requiring domestic electricity companies to measure and report their greenhouse-gas emissions to the government and will soon cap emissions from nonresidential buildings in certain cities.¹⁷ Excited by these new markets, many CDM project developers and financiers plan to provide credits to these new markets.¹⁸ A Finnish company called Greenstream led the way earlier this month by purchasing 1.2 million credits from the new Chinese markets and announcing plans to purchase 10 times as many credits in the next year. China would not have launched these policy efforts as early as it did without the successful clean-energy businesses, environmental gains, tax revenue, and new regulatory capacity enabled by the CDM.

Experience with international carbon markets similarly enabled South Korea to accelerate its domestic climate action. South Korea has implemented more than 100 CDM projects ranging from solar-electricity generation to landfill gas destruction. These projects helped South Korean industries, most notably the large iron and steel sector, to learn how to improve their efficiency and invest in emission reductions in other countries.¹⁹ The South Korean government has also used the CDM to improve their governance capacities, including expanding the roles of multiple agencies—most notably the Ministry of Commerce, Industry, and Energy, the Korean Emission Reduction Registry Center, the Korean Energy Management Corporation, and the Korean Foundation for Quality—and creating two new funds to invest in CDM projects and other emission-reduction opportunities.²⁰

Strengthened by its CDM experience, South Korea has undertaken significant new climate action. It passed a law implementing a nationwide emission-trading system starting in 2015.²¹ The system will cap 60 percent of South Korea's emissions and help enable the country to meet the goal of reducing emissions by 30 percent relative to business as usual by 2020 that it committed to at the climate talks in Copenhagen in 2009. South Korea will also promote global climate leadership by hosting the Green Climate Fund—the new financial mechanism for funding climate action that is being created by the international community—and by promoting climate action through the Global Green Growth Institute, a new international institution dedicated to helping nations enhance economic growth through smart climate policies.

Other major emerging economies with CDM experience have also followed a similar path of turning international carbon-market participation into domestic climate action. Brazil, the country with the third-most CDM projects²² at 269, is now planning a national emissions-trading program.²³ The state of Rio de Janeiro, the source of 14 CDM projects,²⁴ has implemented a municipal emissions-trading system.²⁵ India, the country with the second most CDM projects²⁶ at 1,197, has established markets for renewable electricity and energy efficiency.²⁷ Mexico, the fifth-largest CDM project sponsor²⁸ with 171, recently passed a comprehensive climate law that sets a goal of reducing emissions by 30 percent by 2020 and gives the Mexican government the authority to implement an emissions-trading system. Smaller carbon-market participants, including Belarus, Chile, Colombia, Costa Rica, Indonesia, and Jordan, have partnered with the World Bank and the European Union to begin developing their own emissions-trading systems.²⁹

Over the past decade global carbon markets have helped to transform the geopolitics of climate change by changing the way developing nations think about climate action. Developing countries have long seen climate change as a problem caused by developed countries and as such requiring a solution by these countries. Global carbon markets, however, have changed the mindset of developing country communities, businesses, and governments by helping them gain the capacity to take action against their own emissions and instilling an understanding that well-designed climate policies can help attract foreign investment, create jobs, and stimulate economic growth. In other words, the CDM demonstrated to developing nations that climate action could advance national and local goals. In fact, the CDM on the whole proved hugely popular with developing country governments, entrepreneurs, and communities. This shift in thinking helped to produce numerous new policies

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and programs in developing countries as well as the new global political consensus that all nations need to take nationally appropriate climate action, rather than just developed nations. Contributing to this new thinking represents perhaps the single-largest accomplishment of global carbon markets to date.

Promoting sustainable development

International carbon markets have also spurred economic growth and poverty alleviation in developing nations. Carbon markets allow businesses to invest in people who want to fight climate change in the same way that a stock market allows individuals to invest in companies, and the nonprofit Kiva.org enables individuals to give microloans to entrepreneurs in developing countries, and the crowdfunding platform Kickstarter permits people to support business endeavors around the world. Over the past decade these investments encouraged other investments, created jobs, grew incomes, and supported new entrepreneurship. The sale of the 2.4 billion CDM credits issued thus far, as described above, has generated billions of dollars in revenues for businesses in developing countries and \$356 billion in supporting investments.³⁰ These investments have generated even more in local economic activity by providing jobs and wages that benefit local businesses.

The Clean Development Mechanism, moreover, has helped to improve human health and well-being in developing countries by sponsoring beneficial projects.³¹ Many carbon-market clean energy projects increased access to electricity in rural areas and, by displacing other dirtier sources of electricity, improved local air quality.³² CDM-supported projects to capture waste gases from landfills reduced the risk of the pollutants in those gases leaching into water supplies. In a recent survey of 202 random CDM projects prepared for the United Nations, 66 percent of these projects sought to improve local air quality, 52 percent tried to conserve local natural resources, and 46 percent sought to improve waste management.³³

Global carbon markets have also improved lives by diffusing clean technologies. A quarter of all CDM projects to date have spread new technologies and knowhow to developing countries.³⁴ An Irish company, for example, provided the technology to recover waste gases from landfills, dairy farms, and cattle ranches across Brazil and Mexico.³⁵ Spanish and Danish companies provide many of the wind turbines used to generate clean energy in China.³⁶ This spread of technology can help lower the cost of reducing emission and encourage the development of domestic industries.

The international community and developing country governments in particular have in turn leveraged carbon markets to finance further climate action. The United Nations levied a 2 percent tax on all CDM credits and directed the revenue into an internationally managed fund to help least developed nations adapt to climate change, collecting \$324 million by early 2013.³⁷ The fund supported projects such as a \$4.2 million effort to prevent the destruction of valuable agricultural land in Argentina by helping local farmers to better manage their water and an \$8.6 million effort to help local communities in Senegal adapt to rising sea levels.³⁸ Individual developing countries, most notably China as described above, also levied their own carbon-market taxes. China used the revenues from its tax to support many activities including a national study on the impact of climate change on China and how the country can prepare.³⁹

Cost savings in developed nations

Global carbon markets have made reducing emissions much more affordable for developed nations, saving them at least \$3.6 billion since 2008. The cost of reducing emissions from CDM was \$1.30 to \$6.50 less than alternative emission reduction opportunities in the EU Emissions Trading System, or ETS—the carbon market that caps emissions for most of Europe—from 2008 to 2011.⁴⁰ European companies saved at least \$1.5 billion over the same period by purchasing these credits rather than reducing their own emissions. Similarly, Japanese companies, which also purchased CDM credits to offset their emissions, saved at least \$2.1 billion. Further, CDM credits reduced prices in markets such as the EU Emissions Trading System by allowing developed-country emitters to avoid making more expensive emission reductions, saving companies and governments even more money than found by the above estimates.

Creating political will for climate action in developed nations

The cost savings from international carbon markets have enabled developed countries to pursue far more ambitious emission-reduction policies than would have occurred otherwise. In general, carbon markets, by giving businesses cheaper options for reducing their emissions, make aggressive policies more politically palatable for businesses and the electorate. Carbon markets also reduce the threat of wild price swings, a comfort to risk-averse voters and businesses.

The 1997 Kyoto conference offers concrete proof of carbon markets' impact on ambition. In exchange for including the Clean Development Mechanism in the Kyoto Protocol, most developed nations agreed to more ambitious emission-reduction targets. Japan, for example, stated publicly that the CDM allowed it to commit to stronger emission-reduction goals. The lead U.S. climate negotiator at the time Stu Eizenstat testified to Congress that the United States would not have agreed to any emission reductions at Kyoto without the CDM.⁴¹ In 2009 the European Union offered to increase its Kyoto emission-reduction target from 20 percent to 30 percent in exchange for other nations taking on ambitious targets and said that it would achieve most of the additional mitigation through global carbon markets.⁴²

Many private companies, including Dell, Google, HSBC, and PepsiCo, and a number of universities and other institutions also made voluntary pledges to reduce their emissions that depended heavily on international carbon markets.⁴³ Google alone purchased \$15 million worth of carbon offsets, enough to help make the company carbon neutral.⁴⁴ Though small compared to government commitments, these private-sector actions have the potential to help shift business perspectives on climate action, either because they discover business opportunities or because they learn that mitigation costs are manageable.

Carbon-market shortcomings

Despite many important accomplishments, international carbon markets have also failed in a number of significant and highly visible ways. On several occasions market regulators have given credits for questionable emission reductions, certifying a number of projects as environmentally beneficial when they might have occurred without the carbon-market support. The regulators also created a slow and opaque approval processes that has been tarnished by apparent conflicts of interest. These failures, described in more detail below, have understandably eroded public confidence in international carbon markets.

Environmental impact

Early international carbon markets may have given credits for questionable emission reductions, most notably for destroying stockpiles of certain climate damaging air conditioning coolants known as HFC-23.⁴⁵ The CDM gave a large number of credits—47 percent of credits issued to date⁴⁶—for these projects because of

the gas's outsized impact on global warming and because the destruction of the gas could clearly be shown to result from carbon markets—destroying the gas produced no other revenue. Knowing this, a number of coolant-production plants may have increased production of the gas only to receive payments from carbon markets for destroying the unnecessary stockpiles that they produced. It remains unclear how many of the issued credits were tarnished by this market manipulation, and both the CDM regulators and CDM-credit buyers in Europe have taken steps to end this abusive practice. Regardless, the affair remains a serious black eye for global carbon markets.

Global carbon markets also may have created other questionable carbon securities relating to hydro, wind, and other renewable-electricity projects. Renewable-energy projects have produced 17 percent of CDM credits so far and are forecasted to increase their share to 45 percent by 2020.⁴⁷ Many of these renewable-energy projects derived only a small portion of their revenue from CDM credits, relied on widely available technologies, and received significant additional governmental support through tax credits and subsidies. These factors may indicate that some of these projects were built without the support of the CDM. Whether that is knowable or even matters is debatable, and experts remain divided about whether these projects should have been approved.

Governance

When the Clean Development Mechanism began, global carbon trading was brand new. Without past experience and applicable models for success at the global level, the CDM suffered from a long list of regulatory failures in its early years. Initially, its regulators were hopelessly slow, inefficient, opaque, and seemingly politically biased. The governing body of the CDM involved itself in almost all decisions, slowing the average time required for project approvals to 800 days at their worst in late 2008—most decidedly not moving at the speed of business.⁴⁸ The difficult process and long delays significantly increased the cost of registering early projects with the CDM, helping to create transaction costs of \$0.06 to \$0.47 per ton of emission reductions for a number of early projects in India.⁴⁹ The transaction costs posed larger barriers for least developed countries, which lacked the capacity to navigate the complex bureaucracy of the CDM and had fewer opportunities to reduce emissions.⁵⁰ Members of the CDM governing body, moreover, simultaneously served as climate-treaty negotiators for their countries and representatives of their country's

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CDM regulator, creating a high potential for conflicts of interest.⁵¹ The CDM governing body also failed to follow consistent written guidelines, often making ad hoc decisions and breeding uncertainty among investors.⁵² On top of all of this, many meetings of the CDM leadership occurred behind closed doors, and no appeals mechanism existed to challenge board decisions.

Sustainable development

Some global carbon-market projects also may have harmed the local environment and communities. Critics allege, among many things, that the CDM has encouraged the construction of large hydroelectric power plants that harmed local ecosystems, displaced communities, and damaged local water quality.⁵³ Other stakeholders argue that CDM projects to collect landfill methane have destroyed the livelihoods of communities of garbage pickers who depend on local dumps. Most horribly, owners of a CDM accredited palm-oil plantation in Honduras allegedly massacred 23 farmers in a land dispute.⁵⁴ These failures, whether the CDM could have prevented them or not, fly in the face of one of the twin objectives of the CDM to promote sustainable development.

Effect of criticisms

These criticisms have harmed the credibility of international carbon markets and deterred nations from contributing to their growth. Partly in response to these criticisms, some countries have placed limits on the type and number of international carbon-market credits that they will allow into their domestic markets. As of 2013 the European Union no longer accepts credits from projects to eliminate certain gases with large global warming impacts such as HFC-23 and N₂O and from projects in middle-income countries including China that were registered with the CDM after 2012.⁵⁵ California, as described above, did not allow CDM credits and does not plan to allow any international credits for the first few years of its program.⁵⁶ Likewise, South Korea disallowed any international offsets for the first five years of its new emissions-trading system and will only allow international offsets to meet 10 percent of demand during the next five years.⁵⁷

Resolving the legacy

The failures of global carbon markets, though serious at first, are easy to overstate. These shortcomings should not obscure the far more important benefits of carbon markets for the climate.

Positive environmental impacts

While being too lenient in one respect by issuing more credits than environmentally justified, global carbon markets were also too stringent in other ways. Many projects caused more emission reductions than traders were allowed to sell and this buffer makes up in part for some of the more questionable projects. Aware of the risks posed by setting up the first major carbon-market issuer, the CDM regulators consciously used conservative assumptions in calculating how many credits to give each project. The rules on methane-flaring projects, for example, require low estimates for how much methane the projects destroy. In response to criticisms, in another example, the CDM lowered the limit on the number of credits that the much maligned coolant projects could receive. Moreover, the CDM generally only gave credits to any given project for a period of seven years. These projects, however, created power plants and methane-capture systems that could continue to operate profitably and reduce emissions for many years into the future.

Independent analysis suggests that the failures by the CDM to police against fake credits and the conservative rules of the CDM may have had similar environmental impacts, effectively offsetting each other. Together, all the environmental failures cited by critics would invalidate about 62 percent of existing CDM credits.⁵⁸ The combined effect of all the conservative decisions and standards made by CDM would have caused the CDM to supply 55 percent too few credits. Admittedly, knowing the actual environmental impact of the CDM is impossible, but the prevailing narrative that CDM caused significant environmental harm is most likely wrong.

Governance reforms

The regulators of international carbon markets have also already come a long way in improving their performance. The CDM regulators responded to criticisms by streamlining project approvals, improving internal and external communication,

consolidating and formalizing rules, and standardizing project approval processes.⁵⁹ Reflecting on some of these positive changes, the length of time needed to review a typical project fell to 200 days in late 2011⁶⁰—a 75 percent reduction. Stakeholders now widely acknowledge that the management of the CDM is improved.⁶¹ More reforms are needed, but it is only fair to acknowledge that the CDM is no longer the administrative nightmare it once was.

TABLE 3
Challenges faced by important markets

Market	Crises and governance failures	Reforms	Current status and value
Stock markets	Major bubbles and crashes	Extensive national and international regulations	\$55 trillion in global capital that forms the backbone of the global economy
Agricultural futures	Destructive price manipulation	Disclosure requirements and trading limits	Key financing tool of farmers traded on multiple exchanges across the world
Home mortgages	Excess lending and foreclosures	Lending standards	\$9.5 trillion in U.S. capital that enables millions of borrowers to own homes
SO2 trading program	Excess profits for polluters	Tightening standards to further reduce emissions	Caused dramatic reductions in acid rain at low costs

Sources: Bloomberg;⁶² Freddie Mac⁶³

Carbon market failures in context

The successes and failures of international carbon markets mirrored those of many emerging markets before them. All markets, especially financial markets, face crises and governance failures as they adapt to innovation and changed political circumstances. Regulators continuously respond with reforms to address the burgeoning challenges. Despite this back and forth, securities markets play vital roles in supporting the global economy and meeting people’s needs. Table 3 provides a number of examples of financial markets that have experienced major turmoil but nonetheless are widely accepted as being beneficial.

Stock markets provide a prime example of the challenging but essential role of markets. Stock markets have experienced bubbles and crashes as exuberant investors run up prices and flee bad investments. Regulators have responded to such

volatility by requiring traders to disclose more information and restricting the size of their bets. In the meantime, stock markets became the \$55 trillion backbone of the global economy, helping new companies raise money and investors gain wealth. The same is true of markets for agricultural futures that allow farmers and food processors to insure themselves against swings in food prices. Similarly, SO₂ emissions credits—permits that limit emissions of the pollutants from coal-fired power plants that cause acid rain—have proven their worth.

The CDM was created as a “learning-by-doing” mechanism. Countries hoped the CDM would help them harness the creativity and energy of the private sector to reduce emissions at low costs and in ways that promoted sustainable development. Private investors and their local government partners were given wide latitude to experiment with a broad range of projects and sectors. Unsurprisingly, this experiment, like most experiments, produced successes and failures. The important thing to bear in mind is that the CDM built a foundation of valuable knowledge and capacity upon which the world can build a new wave of carbon markets that produce many more successes than failures. The CDM has come a long way in its less-than-10-year history, probably far further than many other financial markets have over a similar period of time. With any luck, the CDM will some day be seen as the prototype that enabled future success at a far larger scale.

Current state of carbon markets

Market threats

Market proliferation

International carbon markets through their successes and failures alike have already helped to pave the way for a second generation of carbon markets. Japan has announced plans for its Bilateral Offset Credit Mechanism, or BOCM, which will help Japan meet its outstanding climate commitments and create export markets for Japanese companies.⁶⁴ In 2012 California launched its own market to provide offsets for its new statewide emissions-trading system. Meanwhile, China recently laid down guidelines for a carbon market to support its new municipal and provincial emissions-trading systems.⁶⁵ These new markets reflect in part the failure of the original carbon markets because countries developed their own institutions instead of trusting the Clean Development Mechanism. They also demonstrate the success of existing markets, which blazed the political trail and undertook the intellectual heavy lifting that made these new markets possible.

The proliferation of new markets presents a number of challenges. Each of these markets will likely develop unique systems and rules, fracturing the global system and making it harder for businesses to trust the plethora of credits and operate under the regulatory patchwork governing these various markets. Moreover, the new markets could create competition that would cause the lowering of environmental standards in an effort to attract new projects—a race to the bottom. The competing countries might further respond by obscuring the environmental weakness of their individual mechanisms, reducing transparency and causing even more harm to the credibility of the global carbon-market system.

Properly managed, however, the proliferation of carbon markets could be an incredible opportunity. The individual markets could better meet the individual

political and economic needs of their host countries. They could also take some pressure off the strained CDM. Moreover, the competition between markets could motivate new innovation and lead to more cost-effective and environmentally beneficial markets. Encouraging this constructive proliferation, however, would require careful guidance by the international community.

Price collapse

Despite their success in driving climate action and accelerating economic growth, the original international carbon markets now face a price collapse that threatens their viability. CDM credit prices have declined steeply in recent years, falling from \$20 at the end of 2008 to less than \$5 at the end of 2012 and down to 44 cents today, as shown in Figure 2.⁶⁶ The declining prices likely result from a projected stagnation in demand and an explosion of supply. Annual demand for international carbon market credits, which stood at 319 million credits in 2011,⁶⁷ could rise to 330 million by 2015, 520 million by 2020, and decline to 500 million thereafter.⁶⁸ Annual supply, meanwhile, which stood at 308 million credits in 2011,⁶⁹ could explode to 1.1 billion by 2015, 2.1 billion by 2020, and 2.3 billion thereafter.⁷⁰ The low prices undermine incentives to invest in future emission-reduction projects, limiting the beneficial reach of carbon markets. Over time the price collapse will further damage the image of carbon markets and lead more countries and businesses to forgo allowing or purchasing the credits, further weakening demand.

Countries caused this dearth of future demand by failing to pursue sufficient emission reductions and to make use of the existing global carbon markets. Only Europe and Japan purchase significant quantities of international credits,⁷² and Japan may switch to purchasing credits through its own carbon market in the not too distant future.⁷³ Most of the government planning for new significant emission reductions through markets—China, South Korea, and the state of California—do not plan to allow many, if any, international credits.

FIGURE 2
Historical CDM credit prices



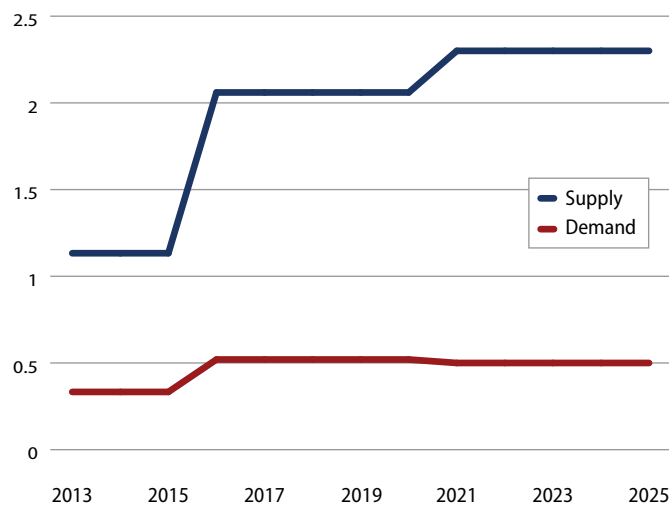
Source: Thompson Reuters Point Carbon⁷¹

Without a significant shift by countries, global carbon markets will face depressed prices for many years, threatening their viability.

Tarnished reputation

Existing carbon markets also face a serious credibility challenge. The highly visible environmental, regulatory, and sustainable development failures described earlier have tarnished the reputation of the CDM. Countries face pressure from environmental advocates to reject the CDM and carbon markets in general in favor of more expensive emission reductions at home. This pressure contributed to the decisions by countries to scale back or disallow the use of CDM credits in their markets. In response, the CDM has undertaken significant reforms as previously described, but these have so far failed to sufficiently improve its poor reputation.

FIGURE 3
Future trends in international carbon market demand and supply



Source: Michaelowa 2012⁷⁴

Policy responses

European efforts

Europe, the largest source of demand for international carbon markets, faces a similar crisis. The EU Emissions Trading System credit prices peaked in 2008 at around \$43 and steadily declined to about \$10 by the end of 2011, now standing at approximately \$4.⁷⁵ The low prices result from a number of factors including the global recession in 2008 and the continuing European financial crisis that lowered economic output and also emissions.⁷⁶ The low prices also result from ambitious European policies such as incentives for renewable-electricity generation and energy-efficiency standards for buildings and automobiles, which further reduced emissions. The lower-than-expected emissions make complying with the EU carbon targets easier for companies and thereby lowers EU and global carbon-credit prices.

The European Commission put forward a proposal that would have “back-loaded” or delayed the auction of a large number of credits—900 million credits from 2013 to 2015 or 15 percent of the credits it plans to issue over those years⁷⁷—until after 2015.⁷⁸ This would have increased credit prices and encouraged Europeans to buy more international offsets. In April 2013 the European Parliament, however, rejected the proposal by a narrow margin.⁷⁹ The parliament’s vote does not signal the end of the reforms as the European Commission could marshal support and put forward a new version of the proposal in the months ahead. The failure, however, symbolizes Europe’s current inability to mount the domestic leadership needed to press for stronger international action.

New global mechanisms

Countries also face crucial decisions on two new carbon-market entities. In 2011 nations agreed in global climate talks to create two new market mechanisms. The first, deemed the New Market Mechanism, would be a carbon market—similar to the CDM in this respect only—that could certify emission-reduction credits from developing nations for use by other countries. The New Market Mechanism would likely include a sectoral-crediting system, setting baselines for national economic sectors such as electricity generation, cement manufacturing, or forestry, and providing credits if the country beats the baseline. This would most importantly enable countries to receive credits for their climate policies. The second potential market entity, with the somewhat odd name of Framework for Various Approaches, would specify minimum standards for local, national, and regional carbon markets and other climate policies, as well as enable countries to compare the impact of different policies, among other things.

Both mechanisms, however, remain largely undefined. Nations in 2011 did not specify many details about either mechanism. In 2012 countries agreed to define the structure and rules for the New Market Mechanism during 2013. Lacking clarity on the intent of the Framework for Various Approaches, nations also decided to create a similar one-year process to define a purpose and scope for that policy vehicle.⁸⁰

These new carbon markets represent important opportunities to encourage emission reductions around the world. The sectoral crediting of the New Market Mechanism could increase the scale of emission reductions dramatically and enable developing countries to become familiar with how to implement compre-

hensive national climate policies. The Framework for Various Approaches could raise standards for carbon markets while allowing countries to pursue the best policy paths to reduce their emissions.

Clean Development Mechanism reforms

Countries are also considering a number of reforms to address many of the governance failures regarding international carbon markets. The United Nations brought together a high-level panel in early 2012 to review the successes and failures of the CDM and propose new reforms. The panel put forward a number of proposals that would address many of the remaining governance challenges that still plague the CDM.⁸¹

The panel called for changes in the role and structure of the CDM regulators to improve their performance. The suggestions included encouraging the governing body of the CDM to spend less time dealing with technical issues and more time addressing higher-level strategic questions. The panel encouraged the governing body to delegate the technical responsibilities to its staff and develop performance metrics to evaluate its staff. The panel also proposed changes to the makeup of the CDM leadership, including requiring members to be chosen based on technical knowledge rather than regional affiliation.

The panel also supported a plan to develop an appeals mechanism to handle complaints against the CDM regulators. Under the current system stakeholders have no recourse other than asking countries to raise the issues at the annual climate talks. The panel proposed creating an appeals mechanism with the power to overrule procedural decisions made by the CDM regulators. Separately, the panel proposed a grievance mechanism for local stakeholders to address local environmental and social concerns with specific CDM projects.

The high-level panel further outlined a number of proposals to improve the environmental impact of the CDM. This included suggesting that the CDM standardize the way it measures and evaluates emission reductions and use even more conservative assumptions to reduce the number of credits given to questionable projects. The panel recommended creating what they termed “positive lists” whereby projects meeting certain high standards would receive automatic approval. This would encourage more projects with stronger environmental integrity. The panel further recommended creating incentives to encourage new

projects to take advantage of new technologies, to accelerate technological development and emission reductions.

The panel outlined many other reforms to enhance the economic benefits of projects for local communities: increase the positive indirect impacts for the local environment; encourage more projects from underrepresented regions; and streamline the approval process. The governing body of the CDM is now reviewing the panel's recommendations and deciding which ones to implement. These reforms, though not a cure to all problems, would go a long way toward addressing the worst criticisms of existing carbon markets.

The U.N. panel is not the only source of potential reform for the CDM. The United Nations has frequently asked CDM market participants to propose reforms. A recent solicitation attracted 171 reports suggesting various improvements to the CDM.⁸² The tremendous response indicates not only the possibility for reform but also the continuing interest in seeing the CDM improve.

The way forward

Current national actions to combat climate change fall well short of what is needed to prevent unacceptable risks of catastrophic climate change. Scientists agree that the world is producing far too much climate pollution to keep global temperature increases at 2 degrees Celsius over preindustrial levels by 2100—the generally accepted upper threshold for what scientists consider safe.⁸³ In fact, they think the world is on track for 4 degrees of warming. This horrible scenario would cause more frequent and severe heat waves, render much cropland unusable with estimates as high as 35 percent in Africa, and reverse decades of economic development in the world’s poorest countries.⁸⁴ The developed world would not be spared, with the United States facing more extreme storms, more droughts decimating its agriculture, and higher risks of diseases.⁸⁵ Such shifts would be beyond the ability of human societies to simply adapt and could contribute to mass migrations and geopolitical instability.

International carbon markets have provided a rare bright spot by contributing to a stronger global culture in support of climate action. The original markets, however, now face crises that threaten their future viability. Countries, businesses, and consumers could use carbon markets to cost-effectively take aggressive action and help prevent catastrophic climate change. New political will and commitment to harness the power of these markets is essential. This new investment in turn would reinforce existing carbon markets and create a solid foundation for their continued success.

Increase ambition

Leader-level summit

The world needs to convene an emergency summit on climate action to help accelerate measures to avert massive climate change. We cannot afford to wait until 2015—the earliest time when global climate negotiations might involve world

leaders—nor is the United Nations’ negotiating forum necessarily the best vehicle for agreeing on concrete climate actions and investments rather than treaty commitments. A late 2013 summit of world leaders could be built around the urgent need to ramp up actions, highlighting climate interventions such as carbon markets that also strengthen economic growth and reduce economic and environmental vulnerability. The summit would create a platform for nations and international institutions to expand existing collaboration and explore new partnerships, promote best-practice climate policies, and announce new domestic and multilateral climate commitments.

Such summits enable leaders to look beyond short-term necessities and reach agreements that protect future generations. The last time countries convened such a leader-level summit was at Copenhagen in 2009. That meeting, for all of its flaws, forced world leaders to confront climate change and elicited significant new commitments to reduce climate pollution. The summit proposed here could go much further than Copenhagen as it would not be constrained by the existing climate agreements and treaty negotiations and, as the name suggests, would focus on tangible actions. The World Bank under its current president Jim Yong Kim and his new public commitment to climate action—as well as the bank’s status as a leading global forum focused on economic development—would be well positioned to convene such a summit. In this effort the World Bank could partner with the International Monetary Fund, or IMF, and its current chief Christine Lagarde, a reliable climate champion, and U.N. Secretary General Ban Ki-moon, who has campaigned tirelessly for climate action. Agreements reached at this summit could feed into the major official climate negotiations planned for 2015, helping to pave the way for a future climate treaty.

The summit could include an important role for private-sector leaders and pursue launching public-private partnerships as one of its key goals. At the conference global business leaders could emphasize the importance of predictable and strong public policies and make commitments to new climate-friendly investments subject to enactment of such policies. World leaders could respond to these private-sector calls for action and commitments through policies that support businesses including investments in carbon markets.

Invest in carbon markets

Countries should deliver on new pledges to ramp up climate action agreed to in the proposed summit significantly by increasing demand for international carbon credits. There are several reasonable ways to do this. Nations could create a new global

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carbon bank to finance emission reductions in developing nations. The bank could have a global status analogous to the IMF and the World Bank and be housed in or have branch offices in Beijing or Washington, D.C.⁸⁶ Another option would be for existing international institutions, perhaps primarily the World Bank, to establish a bridge fund that would buy CDM and other global carbon-market credits to restore the balance of carbon market supply and demand until carbon prices in Europe, California, Australia, and elsewhere rise again as they are expected to do over time. A third option would be for the international community to direct the Green Climate Fund—the new climate-finance vehicle arising out of global climate talks—to purchase global carbon-market credits, among other tasks.

A final option would be for major economies to agree, perhaps in the G20 or G8, to targets for financing emission reductions in developing nations, leaving each nation to decide how best to implement its commitment—that is, a collective pledge to purchase a minimum number of emission reductions through global carbon markets. To fulfill their share of such a pledge, the EU nations might choose to use their emission-trading system. While not a G-20 member, Norway might use public funds through government-to-government cash-on-delivery bilateral deals to do its share, as it has done in the past. The United States might rely on carbon-market purchases from California supplemented by new resources from Washington, D.C., whenever feasible. Many countries would look to international carbon markets, with their ease of access, to meet their goals. In addition to flexibility, the option of a collective global goal for carbon-market support obviates the need for governments to hand over new funding to a multilateral institution.

TABLE 4
Options for investing in global carbon markets

	Proposal	Description
1	New carbon market bank	New multilateral institution to finance emission reductions in developing countries through carbon markets
2	New carbon market fund	New fund within the World Bank or other existing institution to support international carbon markets
3	Scaled-up Green Climate Fund	Support and direct the Green Climate Fund to strengthen international carbon markets.
4	International emission-reduction financing targets	New commitments by countries to finance emission reductions in developing countries through international carbon markets and other means.

Each of these ideas could work and deserves serious consideration. They each have as their goal a public-private partnership in which the government facilitates expanded demand for carbon markets and the private sector finds ways to lower costs and explores innovative ways to fight climate change. The important thing is that nations pick an approach and implement it aggressively. The biggest obstacle to any of these ideas, of course, is the political will needed to raise the necessary resources to increase demand for international carbon-market credits. Countries could best overcome this barrier by agreeing to one or more of these approaches in the type of leader-level summit described above. Only such a global resolution, taken among all the major emitters, could create the necessary leadership and resolve required.

Responsible energy

The world continues its decades-long trend of producing more fossil fuels. Global oil production rose 12 percent from 2003 to 2012, and natural gas production rose 26 percent.⁸⁷ Production in the United States rose even more over the same period—27 percent for oil and 26 percent for gas—pushing the country slowly toward becoming an oil and gas exporter.⁸⁸ This new production added to the oil and gas industry's outsized profits with ExxonMobil making \$44.9 billion in 2012, just short of its all-time record set in 2008 before the global recession.⁸⁹ Despite their success, fossil-fuel companies continue to receive significant subsidies from cash-strapped governments. In fact, at a time when many countries face high unemployment and major budget deficits, governments are directly subsidizing fossil-fuel production and consumption to the tune of \$480 billion a year.⁹⁰ Taking into account the harm of these fossil fuels to society through global warming, the world provides a \$2 trillion subsidy for fossil fuels, with the United States leading all other countries at \$502 billion.

Much of the new oil and gas production, having exhausted the easily accessible supplies, carries with it the threat of potentially large environmental harm beyond climate change. Hydraulic fracturing, for example, can threaten local water supplies, and tar sands require the destruction of millions of acres of forests. Other production is occurring in high-risk areas that are difficult for emergency responders to reach in case of spills or other disaster, such as the deep waters of the Gulf of Mexico, as demonstrated by the Deepwater Horizon oil spill in 2010. The same is true of the fragile and remote Arctic Ocean that is experiencing a boom in oil and gas drilling and exploration.

Fossil fuels will remain a reality in the near term as the world cannot transition overnight to renewable energy and electric cars. Leaders of the world’s major economies, however, should accelerate their efforts to phase out fossil fuels and use carbon markets to help ensure that the necessary fossil fuels are responsibly developed. World leaders should start by making good on their commitment at the G-20 meeting in Pittsburgh in 2009 to end harmful fossil-fuel subsidies and should redirect a portion of those revenues to further reduce emissions through global carbon markets. In addition, when fossil-fuel production has overly large environmental impacts or occurs in high-risk areas, countries should work with companies to encourage them to dedicate a portion of their revenue to mitigating the environmental damage. This could include having companies purchase credits from international carbon-market projects that both reduce emissions and add to the local environment, thereby offsetting some of both the climate and nonclimate harm of fossil fuels. As fossil-fuel production extends to new untapped lands and seas, governments should help oil companies to set aside even more revenue to eliminate the further climate pollution that their new production will cause. Fossil-fuel companies already allocate money to protect against oil spills and reclaim mined-out lands; it only makes sense for them to use carbon markets to mitigate the far larger risks from climate change.

TABLE 5
Options for responsible energy policy

	Proposal	Description
1	Scale back and redirect fossil-fuel subsidies	Follow through on G20 commitment to end harmful fossil-fuel subsidies and then redirect portions of revenues to further protect the climate through international carbon markets
2	Insure against high-risk fossil-fuel development	Work with fossil-fuel developers in high-risk areas to invest in international carbon markets
3	Responsibly develop new fossil fuels	Have new fossil-fuel production offset a portion of its climate impact by investing in emissions reductions through international carbon markets

Bringing any of these proposals into being would require careful policy design and strong political leadership to assuage economic and competitiveness concerns. International leaders acting in concert would provide the best chance of meeting these challenges and avoiding new regulations that force fossil-fuel developers to migrate overseas. International lending and development bodies such as the World Bank and the IMF could accelerate the process by implementing these requirements and facilitating a political and technical discussion of suitable policy options.

Strengthen climate goals through markets

Simply put, to stop catastrophic climate change, high-polluting nations, both developed and developing, need to further reduce their emissions. International carbon markets can help enable such reductions. As was the case previously, a few key countries will need to provide the leadership to engender stronger global climate commitments.

Europe needs to lead by setting an ambitious climate target for 2030 and by resuming its prior place as the world's most vocal developed country climate champion. To maximize its moral and political leadership on this issue, Europe should set a target in line with the demands of science and historical responsibilities. This likely will mean reducing EU emissions at least 45 percent below 1990 levels by 2030. The easiest way for Europe to meet tighter emission targets would be to reduce the number of emissions permits it sells to European polluters in Europe's emissions-trading system thereby increasing demand and prices for international carbon-market credits. With the new geographic restrictions imposed by Europe that exclude middle-income countries from European carbon markets, more demand for international carbon credits would directly support climate action and sustainable development in least developed countries. The failure of the aforementioned back-loading proposal evidences the challenges ahead for renewed European leadership, but European leaders must overcome these challenges. The European Union should carry through this proposal and then move on to the bigger task of increasing its climate ambition by tightening its climate target.

A number of major emerging economies, most notably China, India, and Indonesia, also need to translate their strong domestic policies into global climate leadership. Twenty years ago the world thought that the way to solve the climate problem was for developed countries to reduce their emissions and for developing countries to follow with developed-country support. In the ensuing years many

developed countries proved unable to overcome domestic political obstacles and failed to take the necessary action. Many fast-growing developing countries over the same period began to realize both their ability to reduce their emissions and the threat posed by climate change to their future success. These emerging economies now need to transition from domestic emission reductions to global climate leadership by adopting stronger climate goals, helping other countries to step forward to confront climate change.

Open markets to international credits

Leaders should further use their existing emissions-trading systems to create increased demand for emission reductions in developing nations. Emerging emissions-trading systems in California, Australia, South Korea, and China represent major new tools to drive global climate action. Many of these systems, however, including the European carbon market, have placed tight limits on credits from international carbon markets. The history of international carbon markets over the past decade indicates that the benefits of supporting international action as well as domestic emission reductions. Balancing domestic and international emission reductions would help leverage stronger climate action abroad and reduce costs at home in the ways described previously. For these reasons, the existing carbon markets should allow more international credits.

Those who argue against this usually claim that international standards are not high enough. The solution to this, however, is for purchasers to set even higher standards to weed out questionable projects rather than to exclude whole groups of international sellers, as is currently the case. Denying credits from projects in emerging markets, for example, could cut off extremely poor regions of those countries and could prevent carbon markets from shifting the course of some of the fastest-growing sources of emissions in the world, such as the electricity sector in China or the forestry sector in Indonesia. By opening up and holding markets to high standards, California, Japan, South Korea, and China could help raise the quality of all carbon markets while also creating a global culture of market-based climate action. As described below, international bodies, both existing and new, could further help smooth this opening by encouraging global carbon markets to standardize their procedures and elevate the quality of their emission reductions.

Empower consumers

Outside of governments, convincing consumers to take action through international carbon markets could go a long way toward meeting the challenges of climate change. Although government action is vitally important, it need not be the only means of supporting global carbon markets, particularly since the process of setting climate policy is moving slowly at the global level and in key countries such as the United States. Many people around the world are deeply concerned about climate change. The share of the population that viewed climate change as a personal threat at the end of 2010, the last time such a poll as taken, was 75 percent in Japan, 78 percent in Brazil, 53 percent in the United States, 60 percent in Germany, and 21 percent in China.⁹¹ In the United States this number has since steadily crept upward to 58 percent today.⁹² International carbon markets have created an easy means for individuals to finance emission reductions around the world. Encouraging people to take action through international carbon markets could prove a game changer in the fight against climate change.

Companies have tried to market carbon credits to consumers in the past with limited success. Airlines allow passengers to offset the emissions from their flights, and many websites sell carbon-market credits, but these initiatives have not gained a mass following. Recent trends in social media, mobile computing, and online “crowd-based” finance, however, may have created the tipping point needed for consumer-financed carbon markets. These new technologies and businesses now enable hundreds of millions of people around the world, many of them in the developing world, to support and invest in each other’s projects and businesses on the Internet.

Succeeding this time will require following the examples of recent high-profile social business ventures. One such venture called Product Red, a collaboration between major corporations and the singer activist Bono, raised \$200 million for HIV/AIDS programs in Africa and increased the profile of the issue by having companies create specially branded versions of their products and then donating a portion of their revenues.⁹³ The crowdfunding website Kickstarter has raised more than \$555 million for new business and personal ventures by enabling companies and individuals to pitch new product ideas to millions of consumers.⁹⁴ The company Mosaic has already developed a similar model for leveraging investments in rooftop solar generation for consumers.⁹⁵ These and similar innovations are doing for charitable finance and socially responsible investing what Facebook and Twitter have done for media over the past 10 years. Social entrepreneurs, project

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developers, and project financiers, with the support of venture capital, should explore how to apply such models to carbon markets.

Policy innovation

International carbon-market coordinating body

The proliferation of carbon markets brings major risks and opportunities. Competition, as described above, could lead to a race to the bottom among carbon markets for environmental standards and transparency. Such declines in quality could further scare away potential sources of demand for emission reductions from the least developed nations, such as the emerging emissions-trading systems in California, China, and South Korea. As is the case for global technical- and information-sharing bodies for international transportation safety, food safety, intellectual property rights, and scientific, commercial, and manufacturing standards, a new global body could help guide the new carbon markets toward productive competition and beneficial innovation.

The world needs a global financial body to help advise, enable, and where appropriate coordinate international carbon markets. This body could play a number of roles, including convening, helping nations to set technical standards, compiling and sharing information, and assisting carbon markets in exploring the feasibility of allowing exchanges of carbon credits across systems—a process known as “linking” that would potentially create a common global carbon currency. These services would help improve the performance and quality of international and national carbon markets, while at the same time encouraging the spread of such markets to an ever-increasing number of countries and communities.

This new body should be separate from existing carbon-market mechanisms but draw on their capacities and expertise. The existing carbon markets, most notably the Clean Development Mechanism, face a continuing credibility challenge that would undermine their ability to exercise the leadership required of the new body. The Green Climate Fund, a new international climate change body created last year, could potentially fill some of these roles, but it faces a number of political challenges and will not be ready to act for some time. At a minimum, a transitional body is required that could draw on the experience and staff capacities of

the CDM but in a new configuration. One option would be to position the new coordinating body as a joint project of the IMF, the World Bank, and the United Nations, potentially housed at the IMF given its superior experience with international financial markets. Regardless of location, these organizations could help provide the convening and political leadership to create such a coordinating body.

Governance reforms

Countries should encourage carbon-market regulators to make further reforms and help restore their credibility. Existing carbon markets, especially the CDM, continue to face image problems stemming from their past failures and remaining deficiencies. These realities and perceptions undercut political support for these markets and poison the water for the new carbon-market systems emerging around the world. Experts including the panel brought together in 2012 by the United Nations to assess the CDM have proposed a number of constructive reforms that would go a long way toward restoring market credibility and avoiding future problems. These necessary reforms call for more transparency, better-defined roles for carbon-market regulators, appeals mechanisms and “due process”—a more streamlined process for approving projects—and safeguards to ensure the integrity of emission reductions and sustainable development outcomes. Countries should adopt these reforms to ensure and strengthen the CDM and clear a path for new carbon markets.

Learning-by-doing

Countries should further push existing and new carbon markets to encourage innovation and practical experiences that might best be described as learning-by-doing. Global carbon markets have helped blaze the trail for many of the most important climate policies. They can continue to play this catalytic role in a number of areas including new sectoral-crediting markets. Allowing countries to buy and sell new carbon securities representing emission reductions across entire economic sectors, as described above, has the potential to increase climate action sharply in both developed and developing nations alike, just as more limited CDM projects have done. Sectoral transactions are likely to involve emission reductions and financial flows many orders of magnitude larger than CDM projects.

Successfully establishing such systems would require keeping the private sector, with its energy and creativity, at the center. Sectoral regimes should seek to create financial incentives for the private sector to continue to ferret out the lowest-cost and largest emission reductions.

Carbon markets could play a particularly positive role in helping to reduce emissions from the forest sector. Despite the fact that deforestation generates around 15 percent of global greenhouse-gas emissions,⁹⁶ the Kyoto Protocol largely excluded the forest sector from the CDM and thereby from Europe's emissions-trading programs. This has undermined action by many forested countries, such as Brazil, Indonesia, and the Democratic Republic of the Congo, and left those countries and the sector underserved, despite their many low-cost emission reductions.⁹⁷ Reducing emissions from the forestry sector would bring with it a variety of benefits including improved legal protections for small landholders and indigenous communities, better water quality for downstream communities and farms, and protections for biodiversity and endangered species. Existing and new carbon markets should accelerate action in this important sector by expanding their efforts to credit emission reductions from forests.

Conclusion

Global carbon markets continue to suffer under the weight of a widely held reputation of environmental failure and regulatory mismanagement. This perception masks a far more important legacy of accelerating climate action and supporting sustainable development by changing the way people all around the world think about the potential of climate policy to benefit their lives. Whereas a decade ago climate action was something most people in the world felt that others, specifically developed nations, should undertake, global carbon markets have contributed to the new global consensus that well-designed climate policies can further local and national priorities including economic growth and sustainable development. International carbon markets, like the stock markets and mortgage securities before them, certainly require better oversight but they are also invaluable tools for incentivizing climate action in ways that benefit people around the world. Nations need to work harder to reform existing markets and create new ones, and if they do, carbon markets can help the world rise to the pressing challenge of climate change.

About the authors

Nigel Purvis is the founder, president, and chief executive officer of Climate Advisers, a Washington, D.C.-based consultancy specializing in U.S. climate change policy, international climate change cooperation, global carbon markets, and climate-related forest conservation. Previously, Purvis directed U.S. environmental diplomacy, most recently as deputy assistant secretary of state for oceans, environment, and science. In that capacity he oversaw U.S. foreign policy relating to climate change, biodiversity conservation, forests, toxic substances, ozone depletion, and environmental aspects of international trade, as well as serving as the deputy chief U.S. climate negotiator. He currently holds climate change and international affairs research appointments at Resources for the Future, the German Marshall Fund of the United States, and the Brookings Institution. He also serves as the executive director of the bipartisan Commission on Climate and Tropical Forests. He is a prize-winning honors graduate of Harvard Law School.

Samuel Grausz is a director of policy and research at Climate Advisers and manages its domestic energy, transportation, and carbon-markets practices. He has extensive experience working with leading energy companies and has co-authored several studies for prominent think tanks including Resources for the Future, the Brookings Institution, and the Center for American Progress. Grausz also holds a research position at RFF where he works with leading economists on a broad set of energy and environmental policy issues ranging from state-level energy efficiency policies to national carbon policy. Previously, he worked at National Economic Research Associates, an economic consulting firm where he participated in environmental, energy, antitrust, and intellectual property cases. Grausz received his bachelor's degree in economics and political science magna cum laude from Amherst College.

Andrew Light is a Senior Fellow at the Center for American Progress specializing in international climate and science policy, and a professor at George Mason University where he is director of the Center for Global Ethics. He leads the Center for American Progress's work on international climate issues including participation in the Global Climate Network and efforts involving the U.N. Framework Convention on Climate Change meetings. He has authored, co-authored, and edited 17 books including: *Environmental Values* published in 2008; *Philosophy and Design* published in 2008; *Controlling Technology* published in 2005; *Environmental Ethics* published in 2003; *Moral and Political Reasoning in Environmental Practice* published in 2003; *Technology and the Good Life?* published

in 2000; and *Environmental Pragmatism* published in 1996. Light is also co-editor of the journal *Ethics, Policy, and Environment*. His doctoral work was at the University of California at Riverside and UCLA in ethics and public policy, and he completed a three-year postdoctoral fellowship in environmental risk assessment in the School of Medicine at the University of Alberta, Canada.

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