

IV. INTERNATIONAL EFFORTS

A. INTERNATIONAL CLIMATE NEGOTIATIONS

A global effort will be required to protect the planet from the looming climate crisis—putting international climate negotiations at the heart of the fight against global warming. As highlighted above, global greenhouse gas emissions will need to be cut by at least 50-85 percent by 2050 to prevent dangerous global warming. While the United States and other developed countries are responsible for most of the cumulative greenhouse gas concentrations in the atmosphere, and are among the highest per capita emitters in the world, the largest proportion of the projected growth in global greenhouse gas emissions over the coming decades will come from the developing world. The past two years have seen substantial new developments with regard to international climate negotiations. With the conclusion of an agreement in Bali, Indonesia in December 2007 establishing a “roadmap” for future negotiations, many are now looking towards the negotiation of a post-Kyoto global framework to govern international efforts in this sphere after 2012. The Bali roadmap calls for the completion of such an agreement at the Fifteenth Conference of the Parties to the UN Framework Convention on Climate Change at Copenhagen in December 2009.

United Nations Framework Convention on Climate Change

In 1992, the United Nations convened 172 nations at the Earth Summit in Rio de Janeiro for the first attempt of governments to fundamentally address global warming. From the summit, the United Nations Framework Convention on Climate Change (UNFCCC) emerged. It came into effect in 1994 and was ultimately ratified by 192 nations, including the United States. The Convention set the ultimate objective of stabilizing atmospheric greenhouse gas concentrations at safe levels and incorporated a voluntary initial goal that industrialized countries should take the lead in tackling the problem by cutting their emissions to 1990 levels by 2000.

The Kyoto Protocol

In 1995, the first meeting of the Conference of the Parties (COP) to the UNFCCC adopted the Berlin Mandate, which called for the negotiation of a new agreement that would augment the UNFCCC with stricter demands for reducing emissions. This led to the development of the Kyoto Protocol, which was signed in 1997 by 84 countries. The Protocol set mandatory targets for the reduction of greenhouse gas emissions from the world’s developed countries by an average of 5.2 percent below 1990 levels between 2008 and 2012. Ultimately 175 countries—including virtually all developed countries other than the United States and Australia—ratified the Protocol, which officially entered into force in February 2005. Australia ratified the Protocol in December 2007, leaving the United States as the only industrialized country that has not done so.

Kyoto establishes a cap-and-trade system that allows developed countries to meet their commitments through trading of marketable credits under the International Emissions Trading System (IET). Kyoto’s other “flexibility mechanisms”—Joint Implementation (JI) and the Clean

Development Mechanism (CDM)—allow developed countries to meet their emissions targets in part through the purchase of tradable offset credits generated by emission reduction projects in other countries. Through this array of market-based mechanisms, the Kyoto Protocol laid the groundwork for what has become known as the global “carbon market.”

Developments Leading to Bali

The annual UNFCCC meeting in Montreal in 2005 was the first held after the Kyoto Protocol came into force. It launched the efforts to negotiate the next climate agreement that would come into effect at the end of the Kyoto Protocol commitment period in 2012. At the conclusion of the meeting both the Conference of the Parties—those countries including the United States who have ratified the UNFCCC—and the Members of the Kyoto Protocol had agreed to further dialogues toward a post-2012 framework.

The 2006 UNFCCC meeting in Nairobi did not make much progress on the negotiations for a post-2012 agreement, increasing the pressure to make significant progress at the 2007 UNFCCC meeting in Bali, Indonesia. In order to be ready to implement a new climate agreement in 2012, negotiations need to be concluded by the end of 2009. Therefore, countries were under pressure at Bali to agree to a negotiating mandate, such as the Berlin Mandate which guided the Kyoto Protocol negotiations, in order to bring negotiations to a successful conclusion in 2009.

Given the importance of moving the UNFCCC negotiations forward, Secretary-General Ban appointed three Special Envoys on Climate Change and convened a High-Level Event on Climate Change in New York on September 24, 2007. Approximately 160 countries, including 80 heads of State or Government, participated in the daylong discussion of the climate challenge. In preparation for Bali, attention was focused on global actions relating to mitigation, adaptation and investment in technology development and deployment, along with discussion of financial flows to facilitate such action. On September 26, 2007, the Select Committee hosted a briefing at which the three UN Special Envoys, together with Sigmar Gabriel, the German Federal Minister for the Environment, Nature Conservation and Nuclear Safety, discussed the state of play and prospects for international action on climate change.

United Nations Climate Change Conference in Bali, Indonesia

From December 3-15, 2007, representatives from more than 180 countries met in Bali, Indonesia for the United Nations Climate Change Conference—also known as COP 13 (the thirteenth conference of the parties to the UNFCCC). The principal item on the agenda was the development of a “roadmap” for the negotiation of a new global climate change agreement governing the period after 2012, when the Kyoto Protocol’s commitment period ends. The Select Committee sent a staff delegation to the negotiations, and Chairman Markey delivered the first international address on climate to the meeting using virtual world (“Second Life”) technology. On December 19, 2007, the Select Committee held a hearing entitled “After Bali – the UN Conference and its Impact on International Climate Change Policy” at which Christiana Figueres, the Costa Rican representatives at the Bali conference, and several other leading experts on the international negotiations testified.

The Bali Action Plan—the “roadmap” agreement reached at the conference—calls upon the parties to negotiate a new agreement to be adopted at the Fifteenth Conference of the Parties, to be held in Copenhagen, Denmark in December 2009.⁴²¹ The roadmap recognizes the findings of the IPCC’s 2007 Fourth Assessment Report that global warming is unequivocal and that delay in reducing emissions increases the risk of severe climate change impacts and decreases the opportunity to achieve lower stabilization levels of greenhouse gases. The agreement further recognizes that “deep cuts in global emissions will be required” to avoid dangerous impacts from climate change and emphasizes the IPCC’s findings regarding the “urgency to address climate change”—referring in a footnote to the IPCC’s conclusions regarding the range of emission reductions required to meet certain atmospheric greenhouse gas stabilization targets. The draft roadmap agreement had originally included language, advocated by the EU and others, recognizing the need for emissions to peak within the next 10-15 years, for global emissions to be reduced by over 50 percent by 2050, and for developed countries to reduce emissions by 25-40 percent below 1990 levels by 2020. This language was dropped in the face of strong opposition from the United States, Russia, and Japan.

The roadmap identifies four major pillars of climate policy as the basis for future negotiations: mitigation, adaptation, technology development and transfer, and financial resources and investment. With regard to mitigation, the agreement calls for consideration of actions by both developed and developing countries. For developed countries, the roadmap calls for consideration of “measurable, reportable, and verifiable nationally appropriate mitigation commitments or actions, including quantified emission limitation and reduction objectives.” This ambiguous language encompasses, but does not appear to require, absolute emissions caps for all developed country parties.

Perhaps most importantly, as several of the witnesses at the December 19, 2007 Select Committee hearing emphasized, the roadmap also included developing countries in the mitigation agreement for the first time. Developing nations agreed to consider “nationally appropriate mitigation actions” that are “measurable, reportable and verifiable” so long as they are supported by “measurable, reportable and verifiable” support in the form of technology transfer, financing, and capacity-building. In addition, the roadmap calls, among other things, for consideration of enhanced action on adaptation to climate change, technology transfer to developing countries, and financial support for mitigation and adaptation activities in developing countries.

In keeping with the Bali Conference’s heightened focus on adaptation, the parties to the Kyoto Protocol established an Adaptation Fund Board to oversee the implementation of the Adaptation Fund established under the Kyoto Protocol. The Fund is financed through a 2 percent levy on CDM transactions and will be used to assist the developing country parties to Kyoto that are particularly vulnerable to the adverse impacts of climate change.

Delegates to the Bali Conference also considered policies to reduce emissions from deforestation and forest degradation in developing countries (referred to as “REDD”). Although

⁴²¹ Decision 1/CP.13, “Bali Action Plan,” available at <http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf#page=3>.

deforestation and forest degradation account for roughly 20 percent of global carbon dioxide emissions, this area of climate change policy had never before been brought into the agreement. As a first step in this sphere, the Conference delegates agreed to “explore a range of actions, identify options and undertake efforts, including demonstration activities” to achieve “demonstrable, transparent, and verifiable” emissions reductions from deforestation and forest degradation.

Other international negotiations

In addition to the UN process outlined above, there have been a number of parallel international negotiation processes addressing climate change in recent years. Climate change was a major focus of the annual G8 summit held from June 6-8, 2007, in Heiligendamm, Germany. At the summit, the European Union, Canada and Japan agreed to “at least halve carbon dioxide emissions by 2050,”⁴²² but the United States declined to join in this agreement. All eight nations instead agreed that, in working to set a long-term global goal for emissions reductions, they would “consider seriously” the 50 percent reduction by 2050 commitment.⁴²³ Participating parties agreed that “the UN climate process is the appropriate forum for negotiating future global action on climate change” and reiterated “the need to engage major emitting economies on how best to address the challenge of climate change.”⁴²⁴ The Joint Statement by the German G8 Presidency and the Heads of States of Brazil, China, India, Mexico and South Africa, stated that these developing countries “remain committed to contribute our fair share to tackle climate change in order to stabilize green house gas concentrations at a level that would prevent dangerous anthropogenic interference with the climate system.”⁴²⁵

The week prior to the Heiligendamm summit, President Bush announced his support for a negotiation process involving the “major emitter” countries—both developed and developing—to establish a post-2012 framework for action on international climate change. In September 2007, President Bush hosted a meeting of 17 major economies on energy security and climate change in Washington, DC. The White House billed this “Major Economies” meeting as complementary to the United Nations climate change negotiation process. At the meeting, the White House advocated advancing clean energy technologies, setting long-term “aspirational” goals for global greenhouse gas emission reductions, and allowing each nation to set its own strategy for emissions reductions rather than agreeing to internationally binding obligations.

⁴²² G8 Summit 2007, Heiligendamm, Chair’s Summary (June 8, 2007), available at http://www.g-8.de/Content/EN/Artikel/_g8-summit/anlagen/chairs-summary.templateId=raw.property=publicationFile.pdf/chairs-summary.

⁴²³ Id.; see also G8 Summit 2007, Heiligendamm, Summit Declaration: Growth and Responsibility in the World Economy at 16 (June 7, 2007), available at http://www.g-8.de/Content/EN/Artikel/_g8-summit/anlagen/2007-06-07-gipfeldokument-wirtschaft-eng.templateId=raw.property=publicationFile.pdf/2007-06-07-gipfeldokument-wirtschaft-eng.

⁴²⁴ Id.

⁴²⁵ G8 Summit 2007, Heiligendamm, Joint Statement by the German G8 Presidency and the Heads of State and/or Government of Brazil, China, India, Mexico and South Africa on the occasion of the G8 Summit in Heiligendamm, Germany, at 2 (June 8 2007), available at http://www.g-8.de/Content/EN/Artikel/_g8-summit/anlagen/o5-erklaerung-en.templateId=raw.property=publicationFile.pdf/o5-erklaerung-en.

Two more Major Economies meetings were held—one on January 31-31, 2008, in Honolulu, Hawaii, and one on April 17-18, 2008, in Paris France.

In July 2008, the G8 met in Hokkaido Japan. A leaders' meeting of the Major Economies process was held in conjunction with the G8 summit. Despite hopes that the leaders might announce a long-term global goal for emissions reductions, no such agreement was reached. Instead, the G8 opted only to “seek to share with all Parties to the UNFCCC the vision of, and together with them to consider and adopt in the UNFCCC negotiations, the goal of achieving at least 50% reduction of global emissions by 2050, recognizing that this global challenge can only be met by a global response, in particular, by the contributions from all major economies, consistent with the principle of common but differentiated responsibilities and respective capabilities.”⁴²⁶ The Major Economies leaders, for their part, “recognize[d] that deep cuts in global emissions will be necessary to achieve the [UN Framework] Convention’s ultimate objective,” called for the setting of a long-term global goal through the UN negotiation process, and called upon developed countries to “implement, consistent with international obligations, economy-wide mid-term goals and take corresponding actions in order to achieve absolute emission reductions and, where applicable, first stop the growth of emissions as soon as possible,” and, finally, called upon developing countries to “pursue, in the context of sustainable development, nationally appropriate mitigation actions, supported and enabled by technology, financing and capacity-building, with a view to achieving a deviation from business as usual emissions.”⁴²⁷ In short, no firm emission reduction commitments were made by any party.

The Road to Copenhagen

With the negotiation of the Bali Action Plan and with President Bush’s tenure nearing its completion, international attention has now turned to the process of negotiating a new post-2012 international climate agreement—slated to be completed by the Fifteenth Conference of the Parties to the UNFCCC, to be held in Copenhagen, Denmark in December 2009. Successful negotiation of a new agreement in that time frame will require the incoming U.S. administration to move with alacrity, as less than a year will remain between the inauguration of the 44th President of the United States and the Copenhagen meeting and it will take time for the new administration to put its team in place. It will be imperative that the 111th Congress work in concert with the new Administration in support of the negotiating process, as legislative actions will undoubtedly be necessary to support and help shape the Administration’s negotiating positions on greenhouse gas emission reductions, clean technology financing, and international adaptation to climate change impacts.

⁴²⁶ G8 Summit 2008, Hokkaido, Chair’s Summary (July 9, 2008), available at http://www.g8summit.go.jp/eng/doc/doc080709_09_en.html.

⁴²⁷ G8 Summit 2008, Hokkaido, Declaration of Leaders Meeting of Major Economies on Energy Security and Climate Change, available at http://www.g8summit.go.jp/eng/doc/doc080709_10_en.html.

B. SELECT COMMITTEE CONGRESSIONAL DELEGATIONS

Even as climate negotiations have progressed, the Select Committee has actively pursued international dialogue and cooperation on climate and energy solutions—most notably through three Congressional delegations to Greenland the European Union, Brazil, and India, respectively. Two of these—the Greenland/EU and India delegations—were led by Speaker Pelosi.

Greenland and the European Union—May 2008

In late May 2008, Chairman Markey and other members of the Select Committee joined Speaker Pelosi on a fact-finding Congressional delegation to Greenland, Germany, the United Kingdom, and Belgium. The trip explored both the severe impacts of global warming and the solutions many EU nations are taking to cut heat-trapping global warming emissions.

In Greenland, the delegation witnessed first-hand the effects of rising temperatures. Global warming is already having negative impacts on the livelihoods of Greenland's indigenous Inuit population of roughly 45,000. The loss of stable, year-round sea ice is disrupting traditional seal-hunting and fishing practices on which Inuit livelihoods depend. The melting of permafrost is causing extensive damage to homes and other infrastructure in Inuit villages. The Greenland Premier Hans Enoksen, national and local leaders, and residents all emphasized that changes to their environment are rapid and have far reaching economic and cultural impacts.

During a visit to Dr. Konrad Steffen's research station on the Greenland ice sheet, Select Committee members learned about the mounting scientific evidence that global warming is causing an alarming acceleration in the rate of melting of the Greenland ice sheet. Average temperatures in southern Greenland have increased by over 4 °F in the past two decades, and the area of Greenland's ice sheet that melts each summer has increased by 16 percent from 1979 to 2002. Several of Greenland's largest glaciers are now flowing towards the sea at nearly 8 miles per year, twice as fast as they did just 5 years ago. The ice sheet now dumps nearly three times as much ice into the sea as it did 10 years ago—enough every 2 to 3 days during the melting season to supply New York City with fresh water for an entire year. Scientists have also observed an alarming increase in "ice quakes" due to glacial movement—measuring up to 5.0 on the Richter scale—raising questions about the ice sheet's stability. These trends indicate that the accelerating melting of Greenland's ice sheet increases the risk that dangerous sea-level rise will occur sooner than previously predicted.

After witnessing the tangible impacts of global warming on Greenland, the delegation then traveled to Europe to discuss policy and technology solutions to effectively reduce carbon emissions. In Germany the delegation met with Chancellor Angela Merkel, Foreign Minister Frank-Walter Steinmeier, and Environmental Minister Sigmar Gabriel. They outlined Germany's three-pronged approach to reducing global warming pollution by increasing energy efficiency, expanding renewable energy use, and developing climate-friendly fossil fuel technology. Germany has committed to increasing energy efficiency by 20 percent and using 30 percent renewable energy by 2020. To achieve these objectives, it has instituted innovative policies. For example, national building standards are raised periodically to ensure continual

efficiency improvements in buildings, and Germany has created a national fund that provides low-interest loans for efficiency improvements. Their feed-in tariff law, which pays set amounts for electricity generated from renewable sources, has helped increase renewable electricity use from 1 percent in 2000 to 11 percent in 2006.

The development of climate-friendly energy technology is key to Germany's economic development strategy. Currently, Germany holds an impressive 20 percent share of the global energy technology market. The existing \$100 billion market for environmentally friendly energy technology will double in the next 10 to 15 years, and a central economic question is who will supply this new technology developed in response to domestic policies.

Despite their successful domestic policies, the German leaders underscored the importance of an international climate agreement that commits all countries to equitable actions to reduce global warming pollution. The delegation was visiting Germany two weeks before the G8 summit hosted by Germany in Heiligendamm, discussed above, at which Chancellor Merkel made climate change a priority issue.

While in the United Kingdom, the delegation met with a number of Members of Parliament from the Labour, Conservative, and Liberal Democratic parties, and with the Secretary for the Environment David Miliband. At that time, the Labour government had recently introduced its draft climate bill and Parliament was preparing to move the legislation. The draft legislation set a minimum target of reducing UK emissions by 60 percent by 2050. (That target has since been increased to 80 percent below 1990 levels by 2050.) Central to the bill is the creation of a five-year carbon dioxide budget with three consecutive budgets in law at all time to provide balance between predictability and flexibility. According to Secretary Miliband, the carbon budgeting process will become fundamental to the British economy, and the "Chancellor of the Exchequer will have to count carbon as well as pounds." The legislation would also create a Committee on Climate Change as an independent, expert body to advise the government on setting and achieving emission reduction targets and creating the carbon budgets.

Across political parties, there was agreement that reducing global warming pollution was a top priority and that this global problem will not be solved without leadership from the United States. However, there was some disagreement on the domestic policies needed to achieve reductions. Cap-and-trade was seen as a priority, but some also viewed complementary green tax shifts as important. For example, the 2001 climate levy created a fiscally neutral tax on global warming pollution that supported pension reform and was supported by labor and businesses alike. Some also saw complementary policies as necessary in other sectors. In the building sector, zero-carbon houses currently receive a tax break and by 2016 new residential buildings are required to be carbon-neutral.

While in the United Kingdom, the delegation also met with Sir Nicholas Stern, the former World Bank economist and author of *The Stern Review: The Economics of Climate Change*. In his opinion, climate change reflects the greatest market failure in history and policymakers must approach it as a risk management issue, taking action now to prevent costly consequences later. He recommended auctioning allowances as much as possible in climate legislation and felt that strong targets and carbon trading in developed countries would bring China and India along in

the international agreements. Sir Stern encouraged the delegation to act regardless of other countries' actions with the admonition that "saying we are not going to do anything until others do is a recipe for doing nothing."

The trip concluded in Brussels where the delegation met with European Commission President Jose Manuel Barroso, European Commission Energy Minister Andris Piebalgs, and the Belgium Prime Minister Guy Verhofstadt. They discussed the recently agreed EU Climate and Energy Strategy which commits the EU to reduce global warming pollution by 20 percent below 1990 levels, increase energy efficiency by 20 percent, and use 20 percent renewable energy by 2020. To help facilitate the next international climate agreement, they also stated their willingness to reduce their emissions as much as 30 percent if other developed countries and the more economically advanced developed countries take on equitable commitments. The delegation also discussed lessons learned by the Europeans in the transportation sector. The EU has relied on voluntary fuel economy standards for vehicles and the use of extraordinarily high gasoline taxes in member countries. Carbon emissions from vehicles were increasing in spite of these policies, leading to a decision that mandatory fuel economy standards are now necessary. During the delegation's visit, the European Commission was beginning a process to require the new car fleet sold in the EU to meet the equivalent of a 47 miles per gallon standard by 2012. While the EU is pursuing a sustainable biofuels target, it has ruled out supporting development of coal-to-liquid fuels because they increase carbon emissions compared to gasoline.

Brazil—February 2008

In February 2008, Chairman Markey led a Congressional delegation to Brazil including Representatives Tom Davis, Lois Capps, Barbara Cubin, Mike Ferguson, and Jeff Flake. The delegation met with federal and state officials and business and scientific leaders to investigate Brazil's efforts to combat deforestation and climate change and to promote energy independence.

The delegation began with a visit to the city of Manaus, the capital of the State of Amazonas. There, participants attended briefings with scientists from the National Institute for Amazon Research (IPNA), Amazonas Minister for Planning and Economic Development Denis Minev, Amazonas Minister for Environment Virgilio Viana, and the Ariau Towers naturalist, Michael Cartwright. The hosts spoke of the importance of the Amazon rainforest to Brazil and the rest of the world. As Minister Viana noted, "the Amazon is a Brazilian resource that provides a global service." Deforestation and forest degradation are now threatening this important global carbon sink, oxygen generator, and hydrological cycle regulator. In the Amazon, half of the dry weight of trees is carbon, and in 2004—the peak year for deforestation—466 million tons of carbon dioxide was released from deforestation. This is over five times the emissions Brazil generates annually from burning fossil fuels. Deforestation has also devastated species biodiversity. Twenty-five percent of the world's species depend on the 2.7 million square miles of the Amazon rainforest. The loss of biodiversity affects the sustainability of local and global production of goods like latex, cork, fruit, nuts, timber, fibers, spices, natural oils, and medicine.

The Amazonas state ministers discussed the policies they were developing to increase the value of standing forests and reduce deforestation. Goods produced in a sustainable manner

from the forests are exempt from state taxes, and the ministers suggested that removing the international tariffs on these goods would further encourage sustainable development in their state. They were also developing a forest fund with the support of a large Brazilian bank and other international partners to provide subsistence payments to forest inhabitants that preserve their lands. They suggested that developed world countries should consider dedicating some pollution allowances in cap-and-trade legislation for avoided deforestation and hope that their forest fund will provide a model for partnerships with the developed world to protect forests.

The next stop for the delegation was Rio de Janeiro, where Members focused on the potential of biofuels to increase energy independence and reduce global warming pollution. Marcos Jank, the CEO of Sao Paulo Sugarcane Agroindustry Union (UNICA), briefed the delegation on the successes and potential of sugarcane ethanol. Brazil is currently the world's leading producer of sugarcane ethanol fuel, which provides 50 percent of the country's transportation fuel. Eighty percent of the vehicles in Brazil have "flex fuel" capacity and can run on ethanol. Using the waste biomass from ethanol production, Brazil is currently able to supply 3 percent of its energy through sugarcane electricity. This is expected to rise to 15 percent by 2020. Mauricio Tolmasquim, the President of Energy Planning Office (EPE), attributed the success of Brazilian ethanol to the increase of flex fuel vehicle availability, low production costs, and an increase in global exports. Eduardo Feijo, the Brazilian National Association of Automakers (ANFAVEA) liaison, also noted the infrastructure support for ethanol; 94 percent of the Brazilian fuel stations offer a high percentage ethanol fuel whereas in the United States, only 7 percent offer E85 blends.

To learn more about the sustainability of ethanol, the delegation visited the Petrobras CENPES research facility operated by Brazil's nationalized Petrobras energy company. In a tour of the facility, Executive Director Carlos Taden Fraga, and Ricardo Castello Branco, Director of Petrobras' Renewable Energy Program, showed the delegation their work developing cellulosic ethanol from a sugarcane waste product (bagasse) and working to reduce traditional pollution emissions from vehicles.

The delegation's final stop was the capital city of Brasilia, where Members served as the U.S. delegation to the Global Legislators Organization for a Balanced Environment (GLOBE) Forum. At the Forum, they joined with fellow legislators from the G8 countries and five developing countries (Brazil, China, India, Mexico, and South Africa) in high level talks regarding the post-2012 international framework to address climate change. Working in the High Level Session and the Energy working group, the Congressional delegation discussed issues of global warming and ultimately produced a Climate Change Framework recommendation paper for the July 2008 G8 Summit in Hokkaido Japan.

The delegation ended the Brazil tour with official meetings with Tasso Azevedo, head of the recently created Brazilian Forest Service, Brazil State Secretary Everton Vargas, Environment Minister Marina da Silva, State Secretary Thelma King, and the President of Brazil's Chamber of Deputies (counterpart of the U.S. Speaker of the House), Arlindo Chinaglia. The Members and officials discussed how the United States and Brazil can work together towards the shared goals of preserving the Amazon and expanding the development of biofuels. Increased cooperation on sharing of satellite images and other monitoring technology to identify

and prevent illegal logging was suggested as a specific partnership that could have immediate impact.

The delegation ended the trip with a briefing on the latest sustainable agriculture research and practice in Brazil by John Carter, rancher and founder of Aliança da Terra, Dr. Paulo Moutinho of the Instituto de Pesquisa Ambiental da Amazonia, Dr. Daniel Zarin, professor with the University of Florida, and Dr. Daniel Nepstad of the Woods Hole Research Center. The group is attempting to bring ranchers and environmentalists together in support of certifications and sustainability standards for agricultural products produced in Brazil.

India—March 2008

In March 2008, Chairman Edward Markey and Ranking Member James Sensenbrenner accompanied Speaker Nancy Pelosi and other Members of Congress on a fact-finding congressional visit to India. The delegation explored the opportunities for the United States and India to strengthen efforts to reduce global warming pollution and invest in clean energy research, development, and deployment.

They began their visit in New Delhi hosted by Dr. Rajendra Pachauri, Chairman of the Nobel-prize winning Intergovernmental Panel on Climate Change, at the eco-friendly conference center of The Energy and Resources Institute (TERI). Dr. Pachauri and other members of the institute made presentations and answered the delegation's questions about climate change, its impact on India, and potential solutions. Stopping deforestation and providing incentives for reforestation were seen as important ways of reducing global warming pollution in the near term, providing a cushion for the deployment of other technologies. Addressing energy consumption in buildings was also singled out as important.

Dr. Pachauri and his colleagues were also optimistic about the potential of renewable energy in India and around the world. Just one percent of India's solar resources could meet the current power needs of the country, and China is already the largest solar market in the world. One of TERI's newest programs is the "Lighting a Billion Lives" initiative which is distributing solar-powered flashlights and lanterns in villages around the world where there is no electricity. The group was encouraged by Indian businesses' interest in renewables and efficiency technology. They pointed to the 300 Indian companies already involved in the clean energy market generating at least \$1 billion in revenues. The need to foster research and development and collaboration with developed world companies is clear, but intellectual property issues are currently hindering development. Finding a workable solution for all should be a high priority.

While in New Delhi, the delegation met with Prime Minister Manmohan Singh, Minister of External Affairs Shri Pranab Mukherjee, the Prime Minister's Special Envoy for Climate Change Shyam Saran, and a group of parliamentarians from various Indian political parties. They outlined India's domestic and international efforts to combat global warming and discussed areas of potential cooperation between India and the United States.

The Indian government views climate change as a threat to security. Global warming impacts have major economic and social consequences for India, including an increase in

weather-related disasters and diseases and a decline in food production and freshwater availability. The government is preparing a national climate action plan and will release it in the summer. The Prime Minister has already committed to keeping India's per-capita emissions below the average of the developed world. Continued cooperation with the United States on energy efficiency, renewable energy, and clean coal technology will be important to helping India meet this goal as it works to move hundred of millions of its citizens out of poverty.

The Indian government's view is that all multilateral climate agreements should be under the auspices of the United Nations Framework Convention on Climate Change. India was part of the global agreements reached in Rio and Kyoto and is supportive of the roadmap for next international climate agreement developed in Bali. The Indian government's position is that climate change is a global challenge that requires a global response, but the agreement must be equitable. Developed countries that are most responsible for the current problem must commit to reducing their emissions, and developing countries must commit to developing in a sustainable manner provided they receive technology and financial assistance.

The delegation next traveled to Dharamsala to meet with the Dalai Lama and to discuss with him a wide range of issues, including the environmental challenges in Tibet and his views on climate change. He expressed concern that the growing population was threatening the delicate Tibetan plateau ecosystems at the same time that global warming was causing rapid change. The rapid melting of the glaciers is a serious threat to water resources in Tibet, India, and China. He is encouraged by the recent progress being made by countries to cooperate on solutions to this and other global environmental challenges. Protecting the planet should be a priority because, as he noted, "its life is our life, its future our future."

The final stop was in Mumbai, where the delegation began with a briefing on India's nuclear power industry by Dr. S. K. Jain, Chairman of the Nuclear Power Corporation of India (NPCIL). Nuclear power currently provides 4,000 megawatts of power and is projected to increase 63,000 megawatts by 2030. In comparison, coal and natural gas provide 90,000 megawatts now, increasing to 390,000 megawatts in 2030 and renewables provide almost 11,000 megawatts now, increasing to 97,000 megawatts in 2030. The size of nuclear plants is limited by India's transmission grid which cannot accommodate plants over 500 megawatts. Five light water reactors and one fast breeder reactor are currently under construction, and the government has cleared two coastal sites for new plant construction.

The delegation also met with key Indian business leaders, including Mukesh Ambani and Jamshyd Godrej, to discuss India's rapidly growing energy needs and areas of potential cooperation to expand the deployment of renewable energy and energy efficient technologies. Mr. Ambani was enthusiastic about the ability of solar power to do for electricity what mobile telephones did for telecommunications. His solar company electrified 84 villages in just 3 months. Many of India's villages rely on diesel generators for electricity, and have been adversely affected by the high price of oil. Many villages can afford the 15 cents per kilowatt hour costs of the solar set up, but the goal is to drop the price to 10 cents, making electricity affordable to almost all villages. Green buildings are also taking off in India. In 2008, one million square feet of LEED-certified space will be built, adding to the already existing 9 million

square feet. Green buildings are being built even without government subsidies because they make economic sense given the cost of energy in India.

Indian companies are already participating in the global carbon market through the Clean Development Mechanism (CDM). For example, the Essar group has developed a variety of CDM projects including decreasing industrial emissions by switching to natural gas, heat recovery from steel plants, and wind projects in Tamil Nadu and Gujarat states. They are also exploring the development of solar power sites in Rajasthan state. The delegation discussed the inclusion of sectoral agreements in future international climate agreements. The Indian business leaders felt this could be a promising way to achieve emission reductions in energy intensive sectors in developing countries and to support sustainable development.

Technology development was also a key issue for the businessmen. India is going through a transformation. In the past, there was comparatively little investment in domestic technology development, which was seen as too risky. Indian businesses would instead gain access to technology through licensing agreements. Now as the country is becoming richer, there is more focus on technology and human resource development. Almost all the companies represented were partnering with companies in the United States and Europe to develop and patent new energy technologies. Continued technology cooperation between the two countries, coupled with reform to financial institutions to incorporate environmental costs and benefits in financing decisions, was seen by the group as critical to helping India's development, enhancing both countries' national security and reducing global warming pollution.