

REBALANCE TO ASIA III: PROTECTING THE ENVIRONMENT AND ENSURING FOOD AND WATER SECURITY IN EAST ASIA AND THE PACIFIC

HEARING

BEFORE THE

SUBCOMMITTEE ON EAST ASIAN
AND PACIFIC AFFAIRS

OF THE

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REBALANCE TO ASIA III: PROTECTING THE ENVIRONMENT AND ENSURING FOOD AND WATER SECURITY IN EAST ASIA AND THE PACIFIC

WEDNESDAY, JULY 24, 2013

U.S. SENATE,
SUBCOMMITTEE ON EAST ASIAN AND PACIFIC AFFAIRS,
COMMITTEE ON FOREIGN RELATIONS,
Washington, DC.

The subcommittee met, pursuant to notice, at 2:02 p.m., in room SD-419, Dirksen Senate Office Building, Hon. Benjamin L. Cardin, chairman of the subcommittee, presiding.

Members present: Senators Cardin and Markey.

**OPENING STATEMENT OF HON. BENJAMIN L. CARDIN,
U.S. SENATOR FROM MARYLAND**

Senator CARDIN. Let me welcome everyone to this hearing of the subcommittee of the Senate Foreign Relations Committee, the third in our series on the Rebalance to Asia. Let me just observe, I just came from lunch at the State Department with the President of Vietnam, and I think that underscores the administration's commitment to the Rebalance to Asia. The relationship between the United States and Vietnam has gotten much stronger in the last decade. It is a remarkable change in a relatively short time.

The trade minister was also there, who has been negotiating with our trade minister, USTR, on the TPP. So clearly the Asian countries are focused on the United States and on developing stronger strategic relationships with the United States.

Our first hearing dealt with good governance and human rights. We also dealt with security issues. We had a chance to talk to the President of Vietnam about human rights, good governance, and on maritime security issues, which are obviously very, very important issues.

This hearing is going to concentrate on the economic priorities related to environmental protection and food and water security in the East Asia-Pacific region. In June we celebrated Oceans Month and were reminded that protecting the environment and preserving our natural resources is a challenge we must address locally, nationally, and globally. As chair of the Environment and Public Works Subcommittee on Water and Wildlife, I have dedicated a significant amount of my time and energy to advancing domestic priorities that protect the Chesapeake Bay. The Chesapeake Bay is a

precious resource not just to the people of Maryland and to this region, but indeed to our entire Nation, and it has global significance.

In my role as a member of this committee, I have supported efforts to ensure my grandchildren inherit a clean and healthy Earth. As President Obama noted in his recent climate action plan, we have a moral obligation to leave our children a healthier planet.

But environmental protection is not just about our moral obligation to future generations. It is also about advancing our current national security and economic interests. The devastating impacts of climate change and environmental degradation have touched every corner of the Earth, sending shock waves that have reverberated in communities from the Eastern Shore of Maryland to the peaceful plains of middle America, to the pastoral communities of Africa, to low-lying islands in the Asia-Pacific.

Regardless of what any of us may think about the scientific evidence of climate change, one thing is clear: The security and economic impacts of climate-induced shocks and environmental degradation are significant.

For decades, the United States national security and intelligence community have documented the strategic and economic importance of promoting smart sustainable development, protecting the environment, and addressing the global problems of climate change, particularly in the East Asia and Pacific region.

Some observers have criticized the Rebalance to Asia policy for not focusing on the environment and related food and water security issues. However, recent reports and public statements by administration officials have underscored the view that helping the East Asia-Pacific region address environmental challenges is essential for preventing future conflicts and instability and advancing our economic interests in the region.

Just last month, Adm. Samuel Locklear III, the Commander of the U.S. Pacific Command, eloquently conveyed the national security and economic impacts of climate shock, noting that over the past 4 years, nearly 278,000 people were killed in the region due to natural disasters and over half a million displaced and more than \$800 billion lost in economic productivity.

In April during his trip to Japan, Secretary of State Kerry spoke of the need for sustainable fisheries, problems related to illegal mining and logging, and the need for innovative global enforcement mechanisms in the region. In this region, each nation's environmental and natural resource consumption practices can negatively affect its neighbors and climate change impacts are felt across the region. Rivers that provide water for drinking, irrigation, industry, and ecosystems are stressed by increased demands, pollution, and dams.

China's damming upstream of the Mekong River for hydropower projects has led to agricultural and water supply problems for downstream countries. Growing material demands, wealth, and poor development strategies have led to illegal wildlife trade, excessive commercial logging, deforestation, threatening native elephants, rhinoceros, and other species.

The competition for energy and economic resources, including overfishing, has sparked rising tensions in disputed waters in the South and East China Seas. I already mentioned the fact that

maritime security issues are one of our greatest threats to regional security and stability. We are all concerned that one of these minor flareups could end up causing a major problem in the region.

Rising sea levels in the Pacific Ocean, home to the world's largest garbage patch of over 3.5 million tons of trash and pollutants, threaten to degrade the water supply, disrupt agriculture and food security, deplete marine life, biodiversity, impact tourism, and displace millions, including, according to the Department of Defense, our own U.S. military installations.

Forest fires in Indonesia create a haze which devastates the air quality of neighboring countries. Air quality in China is a challenge of epic proportions. During my trip to Beijing in June, I did not have an opportunity to see the sun, and there were no clouds. You can see the air pollution in China. It has become not only a real problem as a health issue, including our own Embassy personnel concerned about its impact on their children, their ability to live in Beijing safely; it has also become a very political problem because the people of China see the problem every day and they are expecting their government to do something about it.

In fact, China is doing something about it. They recognized that this is a growing problem and it looks like they are preparing to take steps to do something about it. There was a recent press report that we received today indicating that they are prepared to take some pretty dramatic steps to deal with the source of pollution and to show real leadership.

We are pleased that the United States and China entered into a working agreement on climate change and we look forward to seeing how that will produce results, not only for China and the United States, but as a model for the region.

We have at least one model for success in the region. Singapore is a trailblazer, a model for good environmental governance, for smart sustainable development. Over the past 40 years, during a period of tremendous industrial growth, Singapore has invested in proactive government reforms to implement best practices in environmental planning. Despite water scarcity, population growth, and rising sea-level challenges, those reforms have made Singapore cleaner, greener, and more prosperous, and they inform regional dialogue on environmental issues within ASEAN.

I look forward to hearing from our witnesses not only about the challenges, but also the partnership opportunities to advance best practices and develop innovative, economically friendly solutions to these challenges.

I expect that the ranking member of the committee, Senator Rubio, who has been a real partner in developing the agenda of our Rebalance to Asia in this subcommittee, will be joining us shortly. He indicated to me he may be a little bit late getting here. He encouraged me to start the hearing so that we would not inconvenience the witnesses and those that are here. So we will do exactly that, and I will yield to Senator Rubio when he arrives.

So let me introduce our first panel. On our first panel, we are pleased to have with us: Dan Reifsnnyder as Deputy Assistant Secretary for the Bureau of Oceans and International Environmental and Scientific Affairs. Can you get that all on one card? [Laughter.]

I am amazed at the titles that we give everyone today. But anyway, we appreciate the work that you do. You have held that position since August 2006, and are responsible for overseeing many issues related to environmental protection and conservation, from the forests to the wetlands to the coral reefs.

In his prior role as the Director of the Office of Global Change, he developed and implemented U.S. policy and global climate change. You are a real expert in this area and it is a pleasure to have you with us.

Our second witness is the Honorable Gregory Beck. As Deputy Assistant Administrator of USAID for Asia, he has oversight responsibility for all of USAID programming in East Asia, Southeast Asia, and the Pacific. He has over 15 years of senior-level leadership experience in development and in conflict and post-conflict environments, including in Asia.

So, gentlemen, it is a pleasure to have both of you before the committee. Your entire statements will be made part of our record and you may proceed as you wish.

STATEMENT OF HON. DANIEL A. REIFSNYDER, DEPUTY ASSISTANT SECRETARY, BUREAU OF OCEANS AND INTERNATIONAL ENVIRONMENTAL AND SCIENCE AFFAIRS, U.S. DEPARTMENT OF STATE, WASHINGTON, DC

Mr. REIFSNYDER. Thank you and good afternoon, Chairman Cardin and other members of the Subcommittee on East Asia and Pacific Affairs. I appreciate the opportunity to appear before you today to testify on the important foreign policy and security issue of protecting the environment in the context of the administration's Rebalance to Asia.

The United States has a long and rich history of strategic engagement with countries in the Asia-Pacific on a multilateral, regional, and bilateral basis, and the administration's rebalance moves us strategically toward even deeper relations with these countries. Their geopolitical and economic landscape makes it imperative that we address mutual challenges. Issues such as climate change, water, and conservation are beyond the reach and power of any one nation to address.

In the Bureau of Oceans and International Environmental and Scientific Affairs, we are working to advance cooperation with countries in the Asia-Pacific region to help solve these difficult problems. I would like to provide you with a few concrete examples.

During the first high-level meeting this month of the U.S.-China Strategic and Economic Dialogue, the Climate Change Working Group agreed to focus on five new ambitious initiatives. Their goals include: reducing emissions from heavy-duty and other vehicles; increasing carbon capture, utilization, and storage; increasing energy efficiency in buildings, industry, and transport; improving greenhouse gas data collection and management; and promoting smart grids.

Second, in my written testimony I highlighted the announcement by President Obama and President Xi in June to phase down the consumption and production of hydrofluorocarbons, or HFCs. Such a global phasedown could potentially reduce some 90 gigatons of carbon dioxide equivalent by 2050.

With China's support, we hope soon to amend the Montreal Protocol to begin phasing down HFCs and to stimulate the use of better alternatives. We very much appreciate the letter that you, Senator Cardin, sent to President Obama on June 5 advocating just such an agreement between the United States and China.

Third, in addition to the work with China, we are also assisting a number of developing countries in Asia to create and implement "low-emission development strategies." Already, developing countries account for the majority of greenhouse gas emissions and these emissions only increase without concerted action to decouple them from economic growth. These strategies enable developing countries to chart pathways to economic growth that reduce emissions over the long term while also achieving domestic growth objectives.

Three other examples I would like to highlight quickly focus on water, forests, and wildlife trafficking. The lack of access to safe drinking water and basic sanitation in the Asia-Pacific region continues to be a major cause of illness. We are taking steps to increase access to safe drinking water and sanitation, improve water resources management, increase the productivity of water resources, and mitigate tensions associated with shared waters.

We are also collaborating with partners throughout the Asia-Pacific to conserve and sustainably manage their forests, supporting our climate change, biodiversity and development goals by working regionally and with key countries such as Indonesia to strengthen forest mapping and science, combat illegal logging, protect natural forests, and restore degraded lands.

Turning to the last example, wildlife trafficking continues to drive protected and endangered species to the brink of extinction. The illegal trade, estimated to be between \$7 and \$10 billion annually excluding timber and fish, undermines conservation efforts, robs local communities that depend on natural resources for their economic resource base, contributes to the emergence and spread of disease, and threatens the rule of law.

The Association of Southeast Asian Nations Wildlife Enforcement Network, ASEAN-WEN, of which the United States is a strong supporter, helps countries share information and facilitate the exchange of regional best practices in combating wildlife crimes. On July 1 President Obama signed an Executive order to combat wildlife trafficking, putting in motion a process to marshal new efforts and better coordinate our existing efforts against wildlife crime.

In addition, a special session on wildlife trafficking was held recently during the 2013 U.S.-China Strategic and Economic Dialogue. Experts from multiple agencies met to review our efforts to combat the global illegal trade in wildlife and identify areas for increased cooperative efforts. The United States is committed to working with China to address this global challenge.

It is becoming more and more vital for the United States to demonstrate our firm commitment to the Asia-Pacific through engagement on a full range of issues important to countries in the region. Achieving a sustainable environment in the Asia-Pacific region requires the cooperation and commitment of all countries.

I thank the chairman, the ranking member, and the subcommittee's distinguished members for the opportunity to testify and I will welcome your questions.

[The prepared statement of Mr. Reifsnyder follows:]

PREPARED STATEMENT OF HON. DANIEL A. REIFSNYDER

Mr. Chairman, Ranking Member Rubio, and members of the subcommittee, thank you very much for inviting me here today to testify on this important issue of protecting the environment in the context of the Rebalance to Asia. I would also like to thank the committee for its efforts to build bipartisan consensus to engage the Asia-Pacific region and advance U.S. interests there. We value working with you and look forward to continuing to work closely with you and other Members of Congress in the future.

The Obama administration's "rebalance" to the Asia-Pacific region is motivated by the desire to develop deeper and more wide-ranging partnerships in a part of the world that is increasingly important to American interests. The region, which is home to two-thirds of the world's population and the world's fastest-growing economies, offers increasing opportunities and challenges for U.S. strategic interests. As such, the administration's rebalance to the region covers a range of strategic objectives from deepening alliances and boosting economic growth and trade, to expanding good governance, democracy, and human rights. However, no rebalance policy would be complete without also examining implications for efforts to protect the environment in the Asia-Pacific region and to promote food, water, and climate security.

The East Asia and Pacific region is known for its vast natural resources and biodiversity. Its economic growth has outpaced environmental protection, which has led to negative impacts on the region's fisheries and coral reefs, forests and grasslands, rivers, lakes, and air. Though the region has made great strides to reduce poverty, 1.2 billion people still live on less than US\$2 a day, according to the World Bank. At the same time, in the past decade some countries in the region have lost 70 to 90 percent of their natural wildlife habitat to agricultural and infrastructure development, deforestation, land degradation, and climate change effects, while demand for water has almost doubled. Populations of big mammals such as elephants, tigers, bears, antelopes, and wild cattle, as well as marine turtles, freshwater fish and amphibians have continued to decline over the past decade. Many primate populations are in serious decline.

Much is at stake: communities across the region are experiencing great changes from fast-paced economic growth averaging 5 to 7 percent annually. Recent growth has reduced poverty and supported progress toward achieving the Millennium Development Goals. Yet rapid growth, urban migration, extensive new infrastructure, exploitation of raw materials, and energy needs also jeopardize the region's natural resource base, food security, and traditional livelihoods.

The United States has a long history of engagement with countries in the Asia-Pacific on a bilateral and regional basis. The Bureau of Oceans and International Environmental and Scientific Affairs (OES) at the U.S. Department of State seeks to advance U.S. foreign policy goals in the region in such critical areas as climate change, conservation, and environmental quality, to name a few. In my testimony, I will focus on several efforts the United States is undertaking in such areas as climate change, water, and conservation, among others in East Asia and the Pacific, and will highlight some examples of bilateral cooperation efforts.

CLIMATE CHANGE INITIATIVES AND PARTNERSHIPS

Internationally, we have made strides in the U.N. Framework Convention on Climate Change (UNFCCC) toward an approach in which all major economies commit to reducing emissions, and we are working to negotiate a global agreement by the end of 2015—to come into effect post-2020—that is ambitious, flexible, and applicable to all.

Through the Global Climate Change Initiative (GCCCI) and other climate-related U.S. Government programs, the United States is integrating climate change considerations into relevant foreign assistance programs through the full range of multilateral, bilateral, and private mechanisms to foster low-carbon growth, promote sustainable and resilient societies, and reduce emissions from deforestation and land degradation.

Through the GCCCI's Sustainable Landscapes pillar and related projects, the United States works with partners to reduce emissions from the land sector, and especially from deforestation. These efforts are undertaken in order to help stabilize

temperatures while conserving biodiversity, protecting watersheds, and improving livelihoods of vulnerable populations. For example, the United States provides support to, and sits on the governing body of, the Forest Carbon Partnership Facility (FCPF). The FCPF is a multidonor trust fund housed at the World Bank that supports countries to develop and implement their own strategy to Reduce Emissions from Deforestation and Forest Degradation (REDD+). The United States also supports, and sits on the governing body of the Forest Investment Program (FIP). This multidonor trust fund, also housed at the World Bank, assists eight pilot countries in implementing elements of their REDD+ strategies. The Asia-Pacific region is prominent in each of these global initiatives. Cambodia, Indonesia, Lao People's Democratic Republic, Papua New Guinea, Thailand, Vanuatu, and Vietnam are all participants in, and recipients of funding from, the FCPF. Indonesia and Lao People's Democratic Republic are FIP pilot countries. Through the GCCI's adaptation pillar and related projects, the United States works to help low-income countries reduce their vulnerability to climate change impacts in a variety of multilateral, regional, and bilateral contexts. The Asia-Pacific region figures prominently in these GCCI activities because of its high levels of vulnerability, as well as its strategic importance for U.S. economic and security interests.

Another example of U.S. engagement in multilateral adaptation initiatives is our support for enhanced action on adaptation in vulnerable countries through contributions to two multilateral adaptation funds overseen by the Global Environment Facility (GEF). The United States is one of the largest donors to the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF), multilateral funds created under the UNFCCC. The Asia-Pacific region has benefited greatly from both multilateral funds. As of May 2013, Asia and the Pacific had accessed 29 percent of total LDCF resources approved (roughly US\$160 million). For the SCCF, the largest share, or 30 percent, of financing had been directed toward Asia.

Climate and Clean Air Coalition (CCAC)

The Climate and Clean Air Coalition is a voluntary, collaborative global partnership uniting governments, intergovernmental organizations, the private sector, and civil society to quickly reduce short-lived climate pollutants such as methane, black carbon, and many hydrofluorocarbons. Actions can be undertaken now using current technologies. Major efforts include reducing methane and black carbon from waste and landfills; avoiding methane leakage, venting, and flaring from oil and gas production; phasing down hydrofluorocarbons through new technologies; and addressing black carbon from brick kilns and diesel engines.

In the Asia-Pacific region the Coalition's members include Australia, Japan, New Zealand, and the Republic of Korea (Bangladesh and the Maldives are also members from Asia). In February 2013, the Coalition held a regional intergovernmental consultation in Bangkok for the Asia-Pacific region. Led by the environment ministers of Bangladesh, Nepal, and Maldives and the vice-minister of Japan, over 100 participants from 19 Asia-Pacific countries, development organizations, CCAC partners, scientists, and NGOs participated. CCAC is actively working with additional countries, including Indonesia, at the subnational level through CCAC initiatives such as municipal solid waste management.

Low Emission Development Strategies (LEDS)

One of our premier international climate activities involves support for "low emission development strategies," or LEDS, in over 20 different developing countries. LEDS provide a framework for developing countries to address poverty and development concerns, while simultaneously reducing greenhouse gas emissions. In many cases, identifying cleaner domestic energy opportunities or finding energy efficiencies accelerates economic growth. In Asia, our assistance is two-pronged. First, we provide bilateral assistance to Cambodia, Indonesia, the Philippines, Malaysia, and Vietnam through the Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) program. Second, we provide multilateral assistance through the LEDS Global Partnership, a largely U.S.-supported platform which provides a space for countries to share knowledge and best practices on LEDS.

Pacific Islands Small Developing States (PSIDS)

From a regional standpoint, the Pacific Small Island Developing States (PSIDS), in particular, are especially vulnerable to the impacts of climate change. They are small in size, have limited human, economic, and natural resources, including freshwater supplies, and are located in areas frequently prone to natural disasters, with much of the population living within 1.5 kilometers of the shore. We are supporting efforts to enhance the scientific and technical capacity of governments, regional and local institutions, and communities in the PSIDS to: understand, forecast, and use

climate information to strengthen the adaptive capacity of key sectors, and, to access and effectively utilize adaptation financing. We are also supporting the Secretariat of the Pacific Community and the Secretariat of the Pacific Regional Environment Program to implement adaptation activities in local communities across the region to strengthen their food security and water resilience in the face of climate change and variability.

China

With regard to our bilateral efforts in the East Asia and Pacific region, on July 10 and 11, 2013, Secretary Kerry hosted the Fifth Round of the U.S.-China Strategic and Economic Dialogue (S&ED). This year there was a strong focus on climate change, with the recognition that both countries need to do more given that together the United States and China are responsible for the lion's share of global emissions. Secretary Kerry elevated climate change in the U.S.-China relationship in April on his first trip to Beijing as Secretary of State, where he issued a Joint Statement creating a Climate Change Working Group tasked with developing large-scale cooperative action and presenting its recommendations at the S&ED. Essentially, the Working Group developed a set of new initiatives to help address major sources of emissions in the United States and China. The Working Group also emphasized the need to work together in fora like the U.N. climate negotiations, the Montreal Protocol, and the Major Economies Forum.

The Working Group Report highlighted the agreement announced by President Obama and President Xi in June on the goal of phasing down hydrofluorocarbons. Given the enormous climate benefits of acting quickly on hydrofluorocarbons, this can only be seen as China stepping forward and helping lead the global effort on climate change. Building on existing bilateral cooperation, the Working Group and the S&ED have put U.S.-China relations on climate change on even firmer footing.

Indonesia

Indonesia is a leader in REDD+, with President Yudhoyono having committed to significant reductions in greenhouse gas emissions, largely from the land sector. To achieve this, Indonesia is creating a series of REDD+ institutions to help implement a national REDD+ strategy. The second Indonesia Tropical Forest Conservation Act program is supporting the reduction of emissions from two heavily forested districts in East Kalimantan, developing new strategies for development on lower emissions trajectories. The United States supports additional work on REDD+ in Indonesia in areas such as forest mapping and monitoring; peatland emissions and fires; low emissions rural development options; and measuring, reporting, and verifying emissions. We have provided support to launch the Indonesia Climate Change Center, and are working with Indonesia on LEDS.

Korea

Korea has stepped up its international efforts to address climate change. It has housed the Secretariat of the Asia-Pacific Economic Cooperation (APEC) Climate Center since the organization's establishment in 2005. In 2012, the board of the UNFCCC's Green Climate Fund (GCF) voted to locate the Fund's headquarters in Songdo, Korea. The Republic of Korea (ROK) is now focused on implementing the GCF's mandate, which is to provide assistance to developing countries to help them limit their greenhouse gas emissions and to adapt to the impacts of climate change. The ROK also cooperates with the United States and other governments and organizations in the CCAC working to reduce short-lived climate pollutants such as methane, black carbon, and many hydrofluorocarbons.

FOREST INITIATIVES AND PARTNERSHIPS

As the United States works to assist the Asia-Pacific region in meeting its growing energy, infrastructure, and agricultural needs in a climate-smart way, we are also working to prevent or minimize impacts on ecosystems, and particularly natural habitats such as biodiverse tropical forests. We work regionally to promote conservation and to address forest issues through the Responsible Asian Forestry and Trade (RAFT) initiative, the Forest Legality Alliance (FLA), the APEC Experts Group on Illegal Logging and Associated Trade, and the International Tropical Timber Organization.

Illegal logging is one such forest issue that poses a significant challenge in the region. It robs countries, impoverishes forest communities, and puts money in the pockets of criminals. It undermines sustainable forest management, destroying forests, watersheds and habitat. And it unfairly competes with legal production and trade, and has even been used to fuel conflict and purchase arms. The United States supports efforts to combat illegal logging and associated trade, and to promote trade

in legally harvested forest products through a multifaceted approach in partnership with other governments, such as China and Indonesia, the private sector, civil society, and international organizations.

We also work to implement the Lacey Act, a wildlife protection statute first enacted in 1900 and amended by Congress in 2008 to expand protections to plants and plant products.

Multilaterally, we work to address illegal logging in cooperation with other governments and stakeholders through the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the International Tropical Timber Organization, the United Nations Forum on Forests, the Food and Agriculture Organization, and the U.N. Office of Drugs and Crime.

Regionally in Asia, we participate in three key initiatives:

- The APEC Forum Experts Group on Illegal Logging and Associated Trade, which we worked with the Government of Indonesia and others to establish in 2011. The group includes representatives of trade, forestry, and other ministries to combat illegal logging and associated trade, promote trade in legally harvested forest products, and support capacity building activities.
- The FLA, a public-private partnership to reduce demand for illegally harvested forest products and increase industry capacity to supply legally harvested forest products.
- The RAFT Program, which has assisted in the development of timber legality assurance and chain of custody systems and has helped to bring 1.2 million hectares of tropical forest under Forest Stewardship Council certification.

China

The United States works bilaterally with China under a formal Memorandum of Understanding (MOU) to Combat Illegal Logging and Associated Trade. The United States and China have achieved a more open and constructive dialogue and relationship on illegal logging since the signing of the MOU in May 2008. Discussions about the importance of private sector and civil society engagement under the MOU have also progressed significantly as there is mutual recognition that in the forest sector, civil society and industry are key players. China is actively promoting voluntary best practices guidelines for its private forestry firms operating overseas and making progress on its wood legality verification initiative.

The Philippines

We have recently signed agreements for a second Tropical Forest Conservation Act debt for nature deal with the Philippines, which will primarily focus on forest conservation and REDD+ activities. These agreements, along with other U.S. efforts, will support the Philippine national government's efforts to reduce emissions from forest loss. Together these efforts are providing significant assistance to conserve, maintain, and restore tropical forests in the Philippines.

Burma

Burma holds the Association of Southeast Asian Nations (ASEAN) chairmanship in 2014 and the government has stated it plans to focus on the environment. Sustainable development and good management of Burma's rich natural resources will be critical for its stability and success, and will provide opportunities to encourage Burmese civil society and government officials to implement best practices and promote sound environmental stewardship in conjunction with economic growth and increased investment. We are supporting NGO efforts to reform the timber production sector and combat illegal logging in Burma.

WATER INITIATIVES AND PARTNERSHIPS

Collectively, the Asia-Pacific region has already met the 2015 Millennium Development Goal to halve the proportion of people unable to reach or afford access to safe water. That said, 65 percent of the population lacks access to piped water supplies and over 1.7 billion people in the Asia-Pacific region lack access to sanitation. The lack of access to safe drinking water and basic sanitation continue to be a major source of illness within the region.

As Secretary Kerry said during his chairmanship of the July 1, 2013, Lower Mekong Initiative and Friends of the Lower Mekong Ministerial Meetings in Brunei, "[the Mekong] is a special river. It sustains the lives of over 70 million people. And it is a powerful economic engine that connects the peoples of these countries." The countries of the Mekong Basin are increasingly considering hydropower as a solution to their growing energy needs. However, construction of dams on the Mekong River poses immediate and long-term threats to food security and livelihoods.

Major infrastructure projects, like dams, are ultimately sovereign decisions that the countries themselves need to make. We are, however, conscious of both the potential negative impacts these projects can have and the opportunities they hold to promote cooperation and regional integration. In the case of the Mekong, we believe greater U.S. diplomatic and technical engagement could help strengthen existing regional institutions (like the Mekong River Commission) and drive the region toward better decisionmaking around large-scale infrastructure. With plans drafted, and construction already underway, the region has a narrow window of time to get this right. Smart, sustainable development is the key; deliberative, transparent, scientifically based decisionmaking benefits all.

The Lower Mekong Initiative (LMI)

Launched by former Secretary Clinton in 2009 to foster cooperation and capacity-building among the lower Mekong countries—Burma, Cambodia, Laos, Thailand, and Vietnam—the Lower Mekong Initiative (LMI) has become a meaningful platform for engaging these countries on important transnational challenges such as shared water resource management. LMI's Environment and Water Pillar, chaired by Vietnam, works to advance economic growth and sustainable development through transnational policy dialogues and programs to improve the management of water and natural resources. The Environment and Water pillar works through three key themes: Disaster Risk Reduction, Water Security, and Natural Resource Conservation and Management.

CONSERVATION INITIATIVES AND PARTNERSHIPS

Wildlife Trafficking

Wildlife trafficking continues to drive protected and endangered species to the brink of extinction. The illegal trade, estimated to be between US\$7–10 billion annually (excluding timber and fish), undermines conservation efforts, robs local communities that depend on natural resources of their economic resource base, contributes to the emergence and spread of disease, and threatens the rule of law. Asian countries are range, transit, and consumer states, linked by multiple transportation routes, methods, and facilitators. In recent years, demand for ivory and rhino horn has skyrocketed. The scale of the illegal wildlife trade in Asia indicates serious corruption at various levels of government, including wildlife authorities and customs officials themselves, throughout the smuggling chain. Officially launched in 2005, the Association of Southeast Asian Nations Wildlife Enforcement Network (ASEAN–WEN), comprising law enforcement agencies of the 10 ASEAN countries (Brunei, Burma, Cambodia, Indonesia, Laos, Malaysia, the Philippines, Singapore, Vietnam, and Thailand), helps countries share information and facilitate the exchange of regional best practices in combating wildlife crimes.

In 2012, the APEC Leaders and Foreign and Environment Ministers condemned wildlife trafficking and urged members to cooperate to counter this crime. We are seeking continued strong statements in the 2013 outcome documents and have proposed specific workshop activities. This past July 1, President Obama signed an Executive order to combat wildlife trafficking, putting in motion a process to marshal new efforts and to better coordinate our existing efforts against wildlife crime. A special session on wildlife trafficking was held recently during the 2013 U.S.–China Strategic and Economic Dialogue. Experts from multiple agencies met to review our efforts to combat the global illegal trade in wildlife and identify areas for increased cooperative efforts. The United States is committed to working with China to address this global challenge.

The Coral Triangle Initiative (CTI)

The Coral Triangle Initiative (CTI) highlights the importance of a regional approach to issues that transcend the national borders of Indonesia, Philippines, Malaysia, Papua New Guinea, Solomon Islands, and Timor-Leste: coral reef and marine conservation, food security and adaptation to climate change. Goals include establishing sustainable ecosystem-based fisheries management for food security and livelihoods, strengthening resilience and adaptation to climate change, designating and effectively managing priority seascapes, establishing networks of marine protected areas, and conserving threatened marine species. The United States Government was the first financial supporter and partner to the CTI. The U.S. team providing support to the CTI involves the State Department, USAID, NOAA, a consortium of NGOs, and a contractor which functions as the Program Integrator. Altogether, U.S. Government support totals more than \$60 million.

MARINE ENVIRONMENT AND FISHERIES

In the Pacific, as elsewhere, the United States has been at the forefront of efforts to protect vulnerable marine ecosystems, assess if certain fishing practices may significantly harm these ecosystems, and develop effective conservation and management measures for these fisheries to prevent such harm or halt fishing in these areas. To promote these objectives, and to provide opportunities for U.S. fishing vessels to participate in certain high seas fisheries, we have successfully negotiated two new fisheries agreements that are now pending before the Senate, one for the North Pacific Ocean and one for the South Pacific Ocean. We urge the Senate to consider these two treaties and two other fisheries treaties that are also before the Senate, with a view to providing advice and consent to their ratification this session.

The Multilateral Treaty on Fisheries between the Governments of Certain Pacific Island States and the Government of the United States (a.k.a. the South Pacific Tuna Treaty) remains a cornerstone of our economic and political relationship with the 16 states of the Pacific Island Forum. The Economic Assistance Agreement associated with the treaty remains a primary source of economic development funds for the Pacific Island States. Recently, we reached agreement on an interim arrangement to extend the operation of the treaty for 18 months, through December 2014, while negotiations for a longer term extension continue.

TRADE

Trans-Pacific Partnership (TPP)

The United States views the Trans-Pacific Partnership (TPP), a regional trade agreement that it is negotiating with Australia, Brunei, Chile, Malaysia, New Zealand, Peru, Singapore, Vietnam, Mexico, Canada, and Japan, as a unique opportunity to tackle trade-related environmental challenges, including harmful illegal wildlife and wild plant trade, in the Asia-Pacific region.

The United States has proposed a TPP environment chapter that includes, among other things:

- An obligation to maintain measures against trading across TPP borders in products harvested or exported in violation of national laws that seek to protect wildlife, forest, or living marine resources. Such provisions would reflect and enhance recent trends in a number of countries to restrict trade in products that have been illegally obtained.
- Mechanisms for cooperation among TPP regulatory and law enforcement authorities in implementing antitrafficking obligations, including participation in and establishment of regional law enforcement networks.
- Commitments to develop and strengthen mechanisms for cooperating and consulting with interested nongovernmental entities in order to enhance implementation of measures to combat trade in illegally taken wild fauna and flora, including with respect to voluntary forest certification mechanisms.

Republic of Korea

The United States and the ROK signed an Environmental Cooperation Agreement (ECA) on January 23, 2012, pursuant to provisions in the environment chapter of the U.S.-Korea Free Trade Agreement. The ECA established the U.S.-Korea Environmental Cooperation Commission (ECC), which held its first meeting in February this year. The Environmental Cooperation Work Program approved by the ECC identifies priorities for cooperative activities in areas such as strengthening environmental protection; promoting public awareness of environmental and resource conservation issues; protecting wildlife and sustainably managing ecosystems and natural resources; sustainably managing ports and maritime vessels; and promoting environmentally sustainable cities and the use of cleaner energy sources.

Singapore

The United States and Singapore have a Memorandum of Intent on Environmental Cooperation, which was negotiated in 2003 in parallel with the Free Trade Agreement. We are actively engaged with Singapore in environmental cooperation activities, including exchanging best practices in water management, climate change adaptation strategies, enforcement of environmental laws, and energy efficiency, among others. On June 27, 2013, Singapore's national water agency, the Public Utilities Board (PUB) and the United States Environmental Protection Agency signed a Memorandum of Understanding (MOU) on Sustainable Urban Water Management. Through this MOU, both countries will strengthen their cooperation on water management issues by working together on safe drinking water research, watershed management, research and development for innovative water and wastewater treatment, water reuse, and other areas of mutual interest.

CONCLUSION

In conclusion, it is becoming more and more important for the United States to demonstrate our firm commitment to the Asia-Pacific through engagement on a full range of issues important to countries in the region, including the environmental issues I have mentioned today. Achieving a sustainable environment in the Asia-Pacific region requires the cooperation and commitment of all countries. The United States continues to forge this cooperation and these commitments through a variety of global, regional, and bilateral approaches.

I thank the chairman, the ranking member, and the subcommittee's distinguished members, for the opportunity to testify, and I welcome your questions.

Senator CARDIN. Thank you very much.
Mr. Beck.

**STATEMENT OF HON. GREGORY BECK, DEPUTY ASSISTANT
ADMINISTRATOR FOR ASIA, U.S. AGENCY FOR INTERNA-
TIONAL DEVELOPMENT, WASHINGTON, DC**

Mr. BECK. Chairman Cardin, thank you for the invitation to testify on the administration's efforts to protect the environment and promote food and water security in the Asia-Pacific region. As part of the rebalance, a key economic and national security priority, the administration has recognized the need to preserve natural resources and promote sustainable development in the region to ensure mutual prosperity, progress, and security. Home to more than half of the world's population, Asia is the fastest growing region in the world and suffers from a lack of access to clean water and air, inadequate food supplies, degradation of natural resources, and loss of biodiversity.

The Asia-Pacific region already accounts for more than one-quarter of global GDP, a number that is expected to rise rapidly in the future. Asia's economic growth comes with an increased demand for energy and land, which could in turn increase greenhouse gas emissions and further threaten tropical forests and marine ecosystems. The effects of these threats are not limited to the Asia-Pacific region. Reports have shown that air pollution emanating from Asia will cause the temperature in the United States to rise as much, or even more, than all U.S. greenhouse gas emissions. By some estimates, more than 10 billion pounds of airborne pollutants from Asia reach the United States annually, that impacts the health and well-being of American citizens.

These compelling needs require USAID assistance and support to advance U.S. strategic interests. The Presidential global climate change initiative invests in developing countries to accelerate transitions to climate-resilient, low-emission economic growth. During fiscal year 2013 USAID provided \$334 million for this Presidential initiative, of which \$65.4 million was for the Asia-Pacific region.

USAID's programs work on development strategies to reduce emissions from deforestation and degradation, address the impacts of climate change on agriculture and marine fisheries, and protect biodiversity and wildlife through both the Lower Mekong Initiative, or the LMI, and the Association for Southeastern Asians, or ASEAN, and bilateral country programs. I would like to take just a few moments to describe some of these programs in further detail.

In 2010 the U.S. Government launched the Enhancing Capacity for Low Emissions Development Strategies Program, a framework

for achieving economic and social development objectives while reducing greenhouse gas emissions. In East Asia we are partnering with Indonesia, the Philippines, Vietnam, Thailand, and most recently Cambodia to help governments and institutions plan for climate-resilient low-emissions development.

Regionally, we are focusing on reducing deforestation to lower emissions through a program called Lowering Emissions in Asia's Forests. Target countries include the countries of the Lower Mekong River region, as well as Malaysia and Papua-New Guinea, with potential for sharing best practices with other countries across Asia. The regional program is working toward improving the management of over 1 million hectares of forests and reducing an estimated 15 million carbon dioxide equivalent tons of emissions.

Global challenges require global responses and participation from all sectors, public, private, and civil society. The Tropical Forest Alliance 2020 is an example of a public-private partnership to reduce tropical deforestation and greenhouse gas emissions associated with key global commodities, such as soy, beef, palm oil, pulp, and paper. It is a whole of U.S. Government effort that works directly with governments and producers and buyers of key commodities to end the cutting of tropical forests for their production.

As environment, water, and food security issues extend beyond national boundaries, it is also crucial to foster regional cooperation through existing institutions such as ASEAN, the Coral Triangle Initiative, the Mekong River Commission, and LMI. For example, through LMI the Mekong Adaptation and Resilience to Climate Change Project focuses on identifying the environmental, economic, and social effects of climate change on the Lower Mekong River Basin, which sustains the lives of over 70 million people and supports their ability to adapt their livelihoods to climate change impacts on water resources, agriculture systems, biodiversity, and ecosystems.

The CTI is a unique example of countries joining forces to develop and implement regional solutions for regional problems. This area in the Western Pacific Ocean is the world's most biodiverse marine ecosystem, providing economic and food security benefits to over 360 million people.

In January of this year, with support from USAID, senior officials from the CTI countries signed a resolution to address the negative impacts of an estimated yearly \$1 billion fish trade, a concrete step to support the sustainability of marine resources.

Trafficking of wildlife, the third-largest area of illegal trade after arms and drugs, also harms the environment by exploiting natural resources and endangering threatened species and ecosystems. Asia's Regional Response To Endangered Species Trafficking, or ARREST, is USAID's flagship antiwildlife trafficking program, working to strengthen law enforcement capacity, reduce consumer demand, and promote regional information-sharing and cooperation.

In conclusion, USAID will continue to emphasize cooperation amongst countries and help build strong democratic processes across the Asia-Pacific region for open dialogue and problem-solving in relation to the environment and climate change.

Thank you, Mr. Chairman, for your time and I look forward to answering your questions.

[The prepared statement of Mr. Beck follows:]

PREPARED STATEMENT OF HON. GREGORY BECK

Chairman Cardin, Senator Rubio, and distinguished members of the committee, thank you for the invitation to testify on the administration's efforts to protect the environment and promote food and water security in the Asia-Pacific region. Today, I hope to share with you how USAID is helping conserve water and food sources in the region through programs which promote sustainable development. I will also share details on our regional and bilateral efforts to reduce the degradation of oceans, air, and forests.

As part of the rebalance to the Asia-Pacific, a key economic and national security priority, the administration has recognized the need to preserve the environment and protect food and water resources in the region to ensure mutual prosperity, human progress, and security. Within USAID, the Asia-Pacific region has been a focus for the environment and food security given its rich areas of biodiversity and growing populations. The Rebalance has sharpened our focus and increased our investment in support of regional institutions and initiatives such as the Association of Southeast Asian Nations (ASEAN), the Lower Mekong Initiative (LMI), and the Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security.

Home to more than half the world's population, Asia is the fastest growing region in the world and suffers from a lack of access to clean water and air; inadequate food supplies; degradation of natural resources; and loss of biodiversity—all of which undermine sustainable development. The Asia-Pacific region already accounts for more than one-quarter of global GDP, a number that is expected to rise. Asia's economic growth comes with an increased demand for energy and land which could, in turn, increase greenhouse gas emissions and further threaten tropical forests and marine ecosystems. Climate change and its impact on natural resources is affecting water and food supplies and intensifying environmental and resource problems that communities are already facing. More than a billion Asians are projected to suffer from its adverse effects. At the same time, natural disasters are becoming more frequent and more severe in Asia—an area of the world that already experiences over 60 percent of the world's major natural disasters. Future environmental threats to Asia are projected to be significant, including more extreme weather and rising sea levels.

The effects of these threats are not limited to the Asia-Pacific region. Reports have shown that air pollution emanating from Asia will cause temperatures in the United States to rise as much, or even more, than all U.S. greenhouse gas emissions. By some estimates, more than 10 billion pounds of airborne pollutants from Asia, including soot, mercury, and carbon dioxide, reach the U.S. annually, which impacts the health and well-being of American citizens. Additionally, degradation of fisheries in Asian waters impact supply in American markets.

These compelling needs require U.S. assistance and support to advance our strategic interests. As the world becomes increasingly interconnected, the U.S. Government, and specifically USAID, recognizes that environmental conditions and people's access to natural resources underlie efforts to achieve economic security, political stability, and peace throughout the globe. If successful climate mitigation and adaptation strategies are not adopted in the near term, hundreds of millions of people will face increasing pressure on water resources; damage to crops and housing; and exposure to extreme weather, diseases, and pests. We know that the world's poorest will be the most affected by these changes and USAID is working with our partners to mitigate these effects and protect the environment, especially in the Asia-Pacific region.

With a new emphasis on helping vulnerable communities build resilience to natural disasters, the Presidential Global Climate Change Initiative invests in developing countries to accelerate transitions to climate-resilient, low-emission economic growth. During FY 2013, USAID will provide \$460.3 million for this Presidential Initiative, of which \$65.4 million is planned for the Asia-Pacific region.

As part of these efforts, USAID is implementing several programs throughout the region to combat global climate change. For our work to be relevant in the Asia-Pacific region, we are using a different business model, one that emphasizes work with local partners so that we enact solutions that are durable and sustainable. We recognize the need for robust partnerships that can have national impact by focusing on partnerships with the private sector, other donors, and host country governments that leverage significant resources for transformational impact. And we also

rely on evidence-based development methods that draw from advances in science, technology, and innovation. We are implementing partnerships with American and Asian scientific and academic institutions that are relevant to these complex challenges and can build off of the latest research and technology.

Therefore, we are working in partnership with governments, civil society, and the private sector, among other stakeholders, to find alternative development pathways that lower greenhouse gas emissions and increase the resilience of communities and economies to climate change impacts. We are also working to help countries and communities prepare for and adapt to climate change and extreme weather events. Much of this work involves maintaining healthy forests, rivers, and oceans to increase resilience to climate change.

USAID's programs include working with countries and the private sector on low emission development strategies; reducing emissions from deforestation and degradation; understanding the impacts of climate change on agriculture and marine fisheries; protecting biodiversity, including wildlife, through the LMI and ASEAN regional institutions; bilateral programs in countries like Indonesia and the Philippines; and the Tropical Forest Alliance 2020, a public-private partnership working to reduce global deforestation associated with key global commodities.

I would like to take a moment to describe some of these programs in further detail.

ENHANCING CAPACITY FOR LOW EMISSION DEVELOPMENT

First, I'll talk about our efforts to promote climate-resilient, low-emission development in the Asia-Pacific region. In 2010, the U.S. Government launched the Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) program. A Low Emission Development Strategy (LEDS), broadly defined, is a country's planning and implementation framework that achieves economic and social development objectives while reducing greenhouse gas emissions. We are now partnering with 20 countries to help governments and institutions plan for climate-resilient, low-emission development. In East Asia, partner countries include Indonesia, Philippines, Thailand, Vietnam, and most recently Cambodia, which signed on in June 2013. The EC-LEDS program is managed by USAID and the U.S. Department of State, drawing upon experts from the U.S. Government's Environmental Protection Agency and Departments of Agriculture, Energy, and Treasury. Our partnership with the State Department helps enhance key diplomatic relationships with partner countries as we work to achieve an effective global approach for reducing greenhouse gas emissions to levels that protect the climate for our children and future generations.

Our regional mission in Bangkok is advancing countries' ability to reduce greenhouse gas emissions through the Low Emissions Asian Development (LEAD) program. LEAD supports regional-level training, technical assistance, knowledge-sharing, and partnership platforms to advance the U.S. Government's international initiatives on LEDS. Among its initial achievements, the LEAD program has successfully organized and launched the LEDS partnership, a new flagship platform for several hundred government and nongovernment practitioners in Asia to engage in peer-learning, hands-on training, and knowledge-sharing on a range of topics related to LEDS and green growth.

REDUCED EMISSIONS FROM DEFORESTATION AND DEGRADATION

We are also working to reduce deforestation to avoid carbon dioxide emissions while actively conserving remaining stands of natural forests. Our activities target countries that are large-scale emitters from deforestation, such as Indonesia; those with large existing stands of forests, such as Cambodia; and those with the potential to reduce carbon emissions through reforestation, such as the Philippines.

Indonesia is a major emitter of greenhouse gases because of widespread forest clearance and burning of areas on peat soils for plantation establishment. Just recently, Malaysia and Singapore were affected by hazardous levels of air pollution from the illegal burning of forests and peat lands in Indonesia. USAID is working to avoid such emissions. The USAID Indonesia Forestry and Climate Support program is an integrated climate change, sustainable forest management, and low carbon emissions development activity that is implemented collaboratively by the Governments of Indonesia and the United States. It builds on 20 years of joint forest management efforts between the two governments, and supports key climate change initiatives of the Indonesian Government including its pledge to reduce emissions by 41 percent. The project also supports sustainable development of local economies by engaging the private sector. Targeted results include a 6 million ton reduction in carbon dioxide emissions; improved management of 3 million hectares of forest, including 1.7 million hectares in priority orangutan habitat; and plans in 12 dis-

tracts that incorporate Strategic Environmental Assessment recommendations for forest and peat land conservation to reduce greenhouse gas emissions.

Regionally, we are focusing on reduced emissions from deforestation and forest degradation through a program called Lowering Emissions in Asia's Forests. This program is a regional technical assistance program helping developing countries in the Lower Mekong to reduce emissions from deforestation and forest degradation. Target countries include the countries of the Lower Mekong River region (Cambodia, Laos, Thailand, and Vietnam) as well as Malaysia and Papua New Guinea, with potential for sharing best practices with other countries across Asia. The regional program is working toward improving the management of over 1 million hectares of forests, reducing an estimated 15 million carbon dioxide-equivalent tons of emissions, and supporting 25 institutions to address climate change issues. The Lowering Emissions in Asia's Forests program is also working to integrate gender considerations throughout the program to empower 20 women leaders and to strengthen the role of women in eight organizations across the region.

TROPICAL FOREST ALLIANCE 2020

Global challenges like reducing emissions from deforestation necessitate global responses. Such responses require participation from all sectors: public, private, and civil society. The Tropical Forest Alliance 2020, called TFA 2020 for short, is an example of a public-private partnership to reduce the tropical deforestation and greenhouse gas emissions associated with key global commodities, such as soy, beef, palm oil, and pulp and paper. It is a whole of U.S. Government effort, with USAID as lead, working closely with the State Department and other departments and agencies. The significance of this alliance is its ability to achieve scale in reducing deforestation and associated greenhouse gas emissions. It will work directly with governments in buying and producing countries, as well as the producers and buyers of these commodities, to end the cutting of tropical forests for commodity production. In June 2013, TFA 2020 held its first workshop in Indonesia on palm oil and pulp and paper. This workshop was an unprecedented opportunity as it brought together for the first time private sector and civil society groups, often at odds with each other, to discuss constructively the challenge of tropical deforestation and how to address it. During this workshop, strong private sector commitments were made to stop deforestation, and the Government of Indonesia committed to protecting the rights of indigenous people dependent on tropical forests.

FOOD SECURITY

USAID efforts are also focused on strengthening food security by improving the agricultural production of small-scale farmers. For example, the Cambodia HARVEST program supports Cambodia's Millennium Development Goal targets, including reducing extreme poverty and hunger; ensuring environmental sustainability; enhancing agricultural production; improving harvest yields and distribution; increasing access to food; and improving resource management and resilience. HARVEST—which stands for Helping Address Rural Vulnerabilities and Ecosystem Stability—integrates two Presidential Initiatives: Feed the Future and Global Climate Change. In Cambodia's Pursat province, the program helped poor women by providing business opportunities, promoting the use of sustainable products and offering environmentally friendly alternatives to traditional income-generating activities such as logging and charcoalmaking. This effort helps communities protect their forest resources through a variety of activities, including tree nurseries, wood lots, and agroforestry, while providing a source of income for villagers. For example, the project helped the Ou Baktra Community Forest by planting 2,000 seedlings in an effort to restore partially degraded forest areas.

REGIONAL COOPERATION ON ENVIRONMENT, WATER AND FOOD SECURITY

As environment, water, and food security issues extend beyond bilateral boundaries, it is also crucial to foster regional cooperation through existing institutions such as ASEAN, the Coral Triangle Initiative, the Mekong River Commission, and LMI. Through these regional bodies, we can facilitate knowledge-sharing among countries and improve the management of national and transboundary natural resources such as water, forests, and fisheries.

USAID has capitalized on the LMI as a framework to foster common interests between Cambodia, Laos, Thailand, Vietnam, and Burma with the goal of enhancing cooperation in areas such as the environment, education, infrastructure development, and agriculture and food security. As part of the LMI, USAID supports several climate change and environment programs. For example, the Mekong Adaptation and Resilience to Climate Change project focuses on identifying the environ-

mental, economic, and social effects of climate change in the Lower Mekong River basin, which sustains the lives of over 70 million people. The project also assists highly vulnerable populations in ecologically sensitive areas to increase their ability to adapt their livelihoods to climate change impacts on water resources, agricultural systems, biodiversity, and ecosystems.

Through Feed the Future, USAID has been working to strengthen and institutionalize ASEAN public-private sector engagement on food security by engaging in public-private dialogues at both the working group and minister-levels. The December 2012 ASEAN Public-Private Dialogue on Sustainable Fisheries and Aquaculture, a collaboration of ASEAN's public and private sectors, established a taskforce for sustainable fisheries and aquaculture and formalized operational guidelines to focus on accelerating sustainable and responsible aquaculture practices. As a result, an ASEAN good aquaculture practices, standards, and certification scheme is being developed to improve the social and economic situation of small-scale farmers and boost the supply of sustainable, responsible, and traceable farmed aquaculture products. By increasing the availability of a key protein source, safeguarding rural livelihoods, expanding incomes, and reducing environmental vulnerability in the region the long-term impact of such activities will be enhanced food security.

USAID is also committed to preserving the oceans in the Asia-Pacific region through initiatives like the Coral Triangle Initiative, a unique example of countries joining forces to develop and implement regional solutions for regional problems. The Coral Triangle marine area in the Western Pacific Ocean is the world's most biodiverse marine ecosystem, providing economic and food security benefits to over 360 million people in the Coral Triangle region and many more around the world.

In January 2013, with support from USAID, senior officials from the six Coral Triangle countries took a concrete step to support the sustainability of marine resources by signing a resolution to address the negative impacts of an estimated \$1 billion per year live reef food fish trade in the Southeast Asia and Coral Triangle regions. In Indonesia, USAID programs in support of the Coral Triangle Initiative continue to focus on building the technical expertise and management of the Ministry of Marine Affairs and Fisheries. Our goal is to optimize the intersection of conservation, sustainability, and profit so that Indonesia's vast marine wealth contributes to long-term national development while adapting to climate change. For example, USAID has worked with the Indonesian Government and its people to improve the management of over 10 million hectares of coastal zones and marine protected areas. In addition, the program has trained over 1,700 individuals in natural resources management, biodiversity conservation, and climate change resilience.

BIODIVERSITY AND WILDLIFE TRAFFICKING

We are also fighting the trafficking of wildlife—the third-largest area of illegal trade after arms and drugs and often a source of financing for organized crime and terrorist organizations. Wildlife trafficking activities also directly harm the environment, by exploiting natural resources and endangering threatened species and ecosystems. Asia's Regional Response to Endangered Species Trafficking (ARREST) is USAID's flagship 5-year, \$8 million biodiversity antiwildlife trafficking program. ARREST is implemented by Freeland Foundation, a Bangkok-based NGO, together with local partners in the 10 ASEAN countries and U.S. Government agencies such as the U.S. Fish and Wildlife Service, State Department, and U.S. Forest Service. ARREST's holistic approach works to strengthen law enforcement capacity, reduce consumer demand, and promote regional information sharing and cooperation across Asia. ARREST continues to build on the ASEAN-Wildlife Enforcement Network. Successes to date include increasing arrests and seizures of illegal wildlife trafficking by elevenfold since 2005; training more than 3,000 government officials in law enforcement techniques; strengthening regional cooperation through a functioning and self-sustainable Secretariat; and raising the awareness of more than 100 million individuals about endangered species that are threatened by consumer demand. We also partner with international law enforcement organizations such as INTERPOL's Project PREDATOR to combat the illegal trade in tigers and snow leopards.

WATER SUPPLY AND SANITATION

And finally, the USAID Indonesia Urban Water, Sanitation, and Hygiene project is supporting the Government of Indonesia in its efforts to achieve Indonesia's Millennium Development Goal targets for safe water and sanitation. The \$33.7 million, 5-year effort, which began in 2011 and is part of the U.S.-Indonesia Comprehensive Partnership, works in more than 50 municipalities across the archipelago to help

provide access to safe water for up to 2 million people in urban areas and access to improved sanitation for up to 200,000 people. The project has been active in 34 urban areas and in the coming year will expand to 20 additional cities. To date almost 250,000 people have obtained access to a safe water supply, an estimated 13,730 individuals now have access to improved sanitation and, in areas surveyed, the per-unit cost of water paid by the urban poor has decreased by an estimated 32 percent.

Our work has also improved water access for nearly 800,000 people in the Philippines and resulted in the financing of projects that will potentially improve water access for 1.8 million more people by mobilizing 42 million dollar's worth of loans from private banks to fund 7 utility-scale projects; training local government units and water districts on project design resulting in the implementation of 164 municipal projects; and strengthening public-private sector partnerships which have implemented 36 village-level water projects.

CONCLUSION

I would like to close by emphasizing the interconnectedness of the world particularly in the context of climate change. This is clearly the case with greenhouse gas emissions, but also where global commodity markets and unsustainable resource management drive deforestation and degradation of transboundary water resources. The world is moving from an era of simple solutions to one in which we must address more complex global challenges like climate change in order to ensure a healthier, safer, and more prosperous future for both the people of Asia and the United States.

As such, USAID will continue to emphasize alliances among countries, through efforts like the Coral Triangle Initiative and public-private sector alliances like the Tropical Forest Alliance 2020, and to help build strong democratic processes across the Asia-Pacific region, for open dialogue and problem solving in relation to the environment and climate change.

Thank you for your time, and I look forward to answering your questions.

Senator CARDIN. Well, let me thank both of you for your presentations.

Mr. Beck, let me just have you talk a little bit more about the Lower Mekong Initiative as to what leverage the United States has working with the Lower Mekong Initiative to deal with some of the water security issues and the dam projects that have been planned. Can you just bring us up to date as to where you think we could be effective in using that initiative to advance water security issues?

Mr. BECK. Thank you, Mr. Chairman, for that question. I was most recently out in Brunei with Secretary Kerry and we cochaired the Lower Mekong Initiative ministerial. It was a great opportunity for us to be working with the five countries who obviously are very interconnected by the Mekong. It was really interesting because Secretary Kerry talked about his experience on the Mekong as a young man and noticed at an early age how important it is to protect that for the livelihoods and the peace and prosperity of those five nations.

At the LMI ministerial, I was able to announce two new programs that USAID is initiating. One of them is building out a platform, an opportunity for us to bring in the technical expertise of the interagency of the U.S. Government, from USAID, from Corps of Engineers, and to be connecting them up with the planners of these large infrastructure projects.

As you noted earlier, seven megadams have already been built up on the upper Mekong in China and I think 20 more are in process. So we need to give them the best technical information so that they understand what the impact will be on the downstream nations.

The second program that we rolled out is also an opportunity for us to connect up those planners with the people. Obviously, the 70 million people in the Lower Mekong region will be directly impacted by the way those infrastructure projects are shaped. So by bringing in the people, by bringing in the nongovernmental organizations and civil society organizations, to be involved in that conversation to help in the planning and to be mitigating some of the most damaging parts of infrastructure projects, we think we will help to mitigate and also to provide better planning and better projects, to ensure that the livelihoods are protected of those people.

I think 70 percent of the population in the Lower Mekong Basin survive on agriculture and fisheries. So we believe those two projects will be most helpful.

Senator CARDIN. Well, in some cases just the presence of the dam itself is going to create a major challenge on these issues. In other cases, you can mitigate the effects. How receptive are the countries to mitigation plans or using best practices to deal with the consequences of the dam being placed on the river?

Mr. BECK. Obviously, because China is where many of the dams are being built, but of course also Cambodia and Laos—the dam in Cambodia is actually going to have the most impact on the people of Cambodia. So we do see some initial opening to engaging with us on that by bringing in our technical experts. So we are seeing some initial receptivity to that. But I think there's still a tremendous amount of work to be done.

We also find that by working with civil society organizations, by strengthening their capacity to advocate on behalf of the citizens of the Lower Mekong Basin, that that will also be effective in driving the interests of the people forward to ensure that they are considered and they are protected in those projects.

Senator CARDIN. Thank you.

Mr. Reifsnnyder, I want to get into the relationship with China. Could you bring us up to date as to what has happened since the commitment to set up a working group on climate change between the United States and China? Then I would also like you to comment on the press account today that—the report says the government said recently it would name and shame China's dirtiest cities, as well as force factories to disclose environmental standards publicly, in an attempt to bring them into line. It also set targets of cutting emissions intensity in key industries by 30 percent by 2017.

At least one banking expert in the region said it is the most aggressive policy effort to address air quality issues in Chinese history. Is there a real hope here and how is the working group functioning?

Mr. REIFSNYDER. Thank you, Senator, for those questions, which are excellent. I think that, first of all, let me address the second question first because in many ways I think it is China's recognition of the problem that is having—

Senator CARDIN. I'm not sure your mike is on.

Mr. REIFSNYDER. I guess it is red when you speak, OK.

Thank you for the excellent questions. I think the second question actually leads to the first, so if I could address that one. It is recognition by China of the problem it is having domestically in

many of its major cities with air pollution, just as you mentioned in Beijing in your trip in June. I myself have been to China three times this year. The air pollution in many areas is just very, very difficult for people.

That is giving rise, as you correctly noted, to a political concern. People are agitating for change. I think this is well recognized by the Chinese Government. The current 5-year plan is very aggressive in this way. Our sense is that the Chinese are very determined to take this on, because they have to.

It is partly for that reason that we have found some real receptivity as well to the overtures we have made recently, particularly with Secretary Kerry's visit in April, where he was able to propose a new working group, a Climate Change Working Group, that he asked to develop recommendations barely 3 months later for the Strategic and Economic Dialogue that took place here in Washington just 2 weeks ago.

That working group met very intensively. Todd Stern, our Special Envoy for Climate Change, and Zie Zhenhua, Vice Chairman of the National Development and Reform Commission, led that effort on each side. They produced new initiatives in the areas that I mentioned in my testimony: heavy-duty vehicles, reducing emissions from heavy-duty vehicles, which is one of the fastest growing areas of emissions in both countries; increasing carbon capture, utilization, and storage; increasing energy efficiency in buildings, industry, and transport; improving greenhouse gas data collection and management; and promoting smart grids.

One of the most interesting developments I think recently in China has been the new carbon exchange that has been set up in Guangdong province in Shenzhen. We were there right after the opening. It is an effort on a regional basis to begin emissions trading in China, which is very fascinating. There is a cooperative effort being undertaken now with California in that regard and we met with California officials also when we were there. So there are some very interesting developments.

I think China is quite serious about addressing air pollution and it is also that seriousness, that concern about air pollution, that leads to many openings for us to work together also to address climate change.

Senator CARDIN. Is there anything we should be doing to strengthen the prospects of a constructive outcome with our engagement in China?

Mr. REIFSNYDER. Thank you, Senator. In fact you are doing a great deal, and I could cite some examples. Your trip in June that you mentioned—the fact that we have senior members of our Congress going to China, talking with Chinese officials, meeting with Chinese enterprises and others, conveying our concern and our willingness to work with them, I think that's a very powerful message.

The letter that you sent to President Obama, that you and others sent to President Obama in early June about the HFC issue, which I think was very helpful.

The hearings that you are conducting on the Rebalance in Asia. I think all of these things are very constructive efforts on the part of Congress and we welcome them.

Senator CARDIN. Let me just make an observation from my visit. I found the government officials I talked with—I thought they were very sincere in trying to develop workable plans. I think they have taken steps. They recognize they have a political problem as well as a real problem from the point of view of the health of their people. So I think there really is a genuine opportunity here to make some advancement.

Let me switch gears a little bit to the overfishing issue and the management of fish stock in the region. It not only presents a resource problem, but it also is a security issue. It is the source of much of the maritime security conflicts, fishing rights, et cetera. How can the United States be effectively involved here to deal with the management of the problems of overfishing?

Mr. REIFSNYDER. Well, perhaps I could start on that. We are involved already. We have been for many years in a number of regional fishery management organizations. These are efforts collectively to try to come to grips with the overfishing problems and so forth. We have had some success in these areas with reducing illegal, unreported fishing and so forth. So I think it is the engagement through regional efforts of regional, we call them “RFMOs,” regional fishery management organizations, that is our best entree to try to help influence the overfishing that is taking place.

Mr. BECK. Mr. Chairman, if I might add, too, just in addition to Dan. On the Coral Triangle Initiative, this is also I think a perfect opportunity for us to be engaging with the six countries who are at the epicenter of fisheries in the world. It is known as the Amazon of the ocean at the Coral Triangle Initiative. So working at both the policy level to ensure that we are aligning policies that are protecting those fisheries amongst the six countries, but also then working down at the community level to ensure that we are protecting those overfished areas, I think that is an opportunity for us also to have some impact.

Senator CARDIN. When I was in Korea we talked about the problems of North Korea beyond just the nuclear risk factors. We talked about deforestation. North Korea has lost 30 percent of its forests in the last 20 years. It is having a devastating impact on its crop and on floods.

We have limited opportunities within North Korea and most of it is aimed at dealing with the nuclear threat issues. Yet the North Korean policies are devastating to the environment, devastating to the sustainable economy of their own people and the basic rights of its citizens. Is there a way that we can work in the region to get North Korea engaged on the environmental disasters that they are perpetrating on their own country?

Mr. REIFSNYDER. Well, I think, yes, it is difficult, Senator. But I can tell you that just a couple years ago I visited Primorye in the far east of Russia. There we have been working with the Russians on conservation of leopard and tiger as well. Those areas are very close to the Korean border. This is an area where I know the Russians have been working a bit with the North Koreans. The Chinese have also been working with them through cooperative agreements.

So perhaps through some of our partners, Russia and China, we have an opportunity to influence some of what is going on. But it is very difficult under the current political situation.

Senator CARDIN. Let me turn to Senator Markey, who was an expert on this area during his service in the House of Representatives. It is a real pleasure to have him in the U.S. Senate and particularly on this subcommittee.

Senator MARKEY. Thank you, Mr. Chairman, very much, and I thank the witnesses.

The rise of China has transformed the global economy and has enabled millions of Chinese people to rise out of poverty. China's rise has also had repercussions on global energy markets and the environment. As its influence on the world grows, we must ensure that China is a responsible partner in addressing the energy and environmental challenges that the world faces, especially climate change.

Working with the United States and other countries to address climate change is also in the best interests of China. The impacts of climate change are already affecting China's water and food security. For example, the storage capacity of Himalayan glaciers is declining. These glaciers feed Asia's 10 largest rivers, which supply 47 percent of the world's population with fresh water.

Chinese efforts to reduce carbon pollution from burning coal and diesel will also improve air quality and public health. China also has an opportunity to improve global security by combating the growing market for illegal wildlife products. Recent reports have documented a dramatic increase in poaching and shown that groups like the Lord's Resistance Army and al Qaeda-affiliated groups are raising funds by selling elephant ivory and rhinoceros horns. China has some of the world's largest illegal ivory markets in the world and a single rhinoceros horn can go for \$300,000. By reducing demand at home, China has an opportunity to increase security abroad and save some of the most endangered and beloved species on Earth.

So I was pleased to hear about the progress that is being made through the United States-China dialogue. I am especially concerned about black carbon, which is produced by diesel engines and burning wood and coal. It has a large impact on global warming and public health.

So my question is, What is the role that the United States is playing in helping China to reduce its black carbon emissions?

Mr. REIFSNYDER. Thank you, Senator. I think that I can cite in direct response to that the new initiative that we launched with the Chinese in July, just this month, on heavy-duty vehicles, where we are trying to improve standards for heavy-duty vehicles, we are trying to improve the efficiency of engines of heavy-duty vehicles. This work at least is not confined to heavy-duty vehicles alone. It could also apply to other vehicles, but we need to start, I think, in the fastest growing sector of transportation, which is heavy-duty vehicles in both countries.

So it is the particulate matter that comes from those vehicles that is creating a lot of the problem in both countries. So this is a direct area in which we are working with them now.

Black carbon, though, as you mentioned, is a problem and it is something that we have tried to address through the Climate and Clean Air Coalition. This is an effort that Secretary Clinton began about a year ago when she was still at the State Department. It is an effort that has now expanded beyond the initial base. We are working very productively. China is not yet a member of that effort, but we have made overtures to China. We would be very interested in having China participate and join with us in the effort to address not only black carbon, but also HFCs and methane.

Senator MARKEY. So do you feel that China is actually accepting the reality of climate change in terms of something that they have to do something about? Or are they just still relentlessly pursuing an economic development agenda and not willing yet to deal with this issue, although there are real impacts that China is going to ultimately have to suffer?

Mr. REIFSNYDER. My sense is that China first and foremost as a political matter is dealing with air pollution. That is the single overriding priority in the country today for addressing these kinds of problems. But along with that, China is now the No. 1 emitter in the world of greenhouse gases. There is no denying that this is—I think it is a spot that we occupied for many years. It is not an enviable spot. It is a spot where you have a lot of pressure, a lot of reason to take action.

I think that China is increasingly aware of its role with regard to climate change. It is working with us now in this Climate Change Working Group that we have set up under the Strategic and Economic Dialogue. Our cooperation is intensifying and we look forward to expanding those efforts in the future.

Senator MARKEY. Will China actually respond if the United States does not take action that they view as significant on reducing our own greenhouse gases?

Mr. REIFSNYDER. I think that is an excellent question. I think it is very important in terms of demonstrating to others that we are willing to act at home in order to be in a position to encourage others also to take action regarding their greenhouse gas emissions.

Senator MARKEY. I think it is very difficult to preach temperance from a bar stool. Your father cannot have a beer in his hand when he is saying drinking is bad for you, or a cigarette or a cigar while he is saying smoking is bad for you. So I think that if we are going to be preaching then we have to act, and that is why I am so glad that the President has made it clear that he wants the EPA to take action on our own coal-fired plants. I think that is a very strong signal, combined with fuel economy standards and efficiency standards, which actually the Senate is going to pass in the next week as well. So these are strong signals that are being sent.

Let me ask this. What is the United States doing to stop the flow of money from ivory sales that fund wars and insurgency groups like the Lord's Resistance Army and the Somali Islamic group and other groups that are out there, some of them with ties to al-Qaeda? What is our government doing?

Mr. REIFSNYDER. Well, the problem is not just the slaughter of the animals, because it is not just a problem of the states in which the slaughter is taking place. It is also a problem of others, of ourselves, in the sense of the countries that are buying these products

and giving a market to these products and creating the opportunities for that kind of trade to take place.

So we are working through a number of—I mentioned the ASEAN, the regional, the ASEAN–WEN, the Wildlife Enforcement Network. We have set up these networks like the ASEAN Enforcement, Wildlife Enforcement Network, in a number of other places in the world. We are trying to increase awareness of the problem, trying to bring everyone into a solution, because I know that we had some short public service announcements that were once made. I think Harrison Ford was one, who said that when the killing stops the—when the buying stops, the killing will, too.

Senator MARKEY. Thank you.

Mr. Chairman, thank you for this hearing. I served 36 years on the Energy Committee and 36 years on the Natural Resources Committee. So I went to 72 years of hearings. And in one hearing you have both of the subjects that are at the top of the list of those two committees. So I thank you so much.

Senator CARDIN. Let me point out, I chair the Water and Wildlife Subcommittee of the Environmental and Public Works Committee, which deals with wildlife issues. So two committees that I serve on are very much involved here.

Your question on the wildlife trafficking is a very important point. I will tell you, it is all about the economics, and the U.S. market is an important tool that we have, not only the direct purchasing by the U.S. market, but we are negotiating a TPP now. Have we communicated with our negotiators that this should be something considered in those negotiations to make sure markets are protected from this type of support for wildlife trafficking?

The United States, if we take a leadership role, we can affect the economics of this issue. If we affect the economics, we can deal with the species that are endangered as a result of wildlife trafficking. Is that something that we are working on?

Mr. REIFSNYDER. Absolutely, Senator. This is something that I know Secretary Clinton when she was at the State Department was passionate about. It is something that our own Under Secretary for Economic, Environment, and Energy Affairs, Robert Hormats, has been passionate about. It is something that Secretary Kerry is now engaged in.

I think we are mounting a very concerted effort in this area. I personally have been at the State Department since 1984 and I have watched this issue grow in importance in just the past few years in a way that very few issues have. It has just zoomed to the top of the agenda. So I would say yes, very definitely.

Mr. BECK. Mr. Chairman, if I might add also on the area of wildlife trafficking. USAID's ARREST program, within that it is called the Predator Project, and that is working very closely with Interpol to address the trafficking of tigers. So Interpol is working very closely with 11 countries in the region to break down the barriers within their own governments, whether it is from customs or interior, and then working on enforcement, but also working on the demand end. So, bringing those together, we are already seeing a rapid rise in acquisition and also in prosecution of traffickers.

Senator CARDIN. That is a good segue to our second panel, to which one of the first questions I will ask, is how effective our lead-

ership has been on this issue. So we thank both of you. We thank you very much for your service and thank you for your participation in today's hearing.

With that, we will turn to the second panel: Mr. Carter Roberts, President and CEO of the World Wildlife Fund in the United States. WWF is the world's largest network of international conservation organizations. Since joining World Wildlife Fund in 2004, Mr. Carter has doubled the size of the organization, focusing on its efforts to save the world's ecosystems by working with businesses to tighten their impact on the planet through sustainable resource management.

Then we have Elizabeth Economy, who is the C.V. Starr Senior Fellow and Director for Asian Studies at the Council on Foreign Relations. Dr. Economy is a successful academic and author. She has written two highly acclaimed books on China's energy and the environmental challenges, called "By All Means Necessary: How China's Resource Quest Is Changing the World," and the other "The River Runs Black: The Environmental Challenges to China's Future." Those titles entice me to read those books. I must confess, I have not read them yet. But maybe on one of those long flights to Asia I will have a chance to read those books.

Mr. Roberts, we will start with you, and if your daughter is still here we would like you to introduce your daughter.

**STATEMENT OF CARTER ROBERTS, CHIEF EXECUTIVE
OFFICER, WORLD WILDLIFE FUND, WASHINGTON, DC**

Mr. ROBERTS. Thank you, Mr. Chairman. I would love to introduce my daughter Eliza who is here with me to keep me on the straight and narrow. She will be my support throughout the hearing. Thank you very much.

Senator CARDIN. It is all about her generation.

Mr. ROBERTS. Right.

Senator CARDIN. So it is a pleasure to have her here.

Mr. ROBERTS. You are absolutely right.

Mr. Chairman, thank you for having me. As one of your constituents, it is a pleasure to be here. Senator Markey, I congratulate you. As a family whose happiness rises and falls on the fortunes in Fenway, we are delighted to see you in your post. So thank you for having me.

This is a tremendously important topic. In our work, increasingly our eyes turn to Asia and Southeast Asia. It is a time when the leaders of that region increasingly value what we call natural capital.

I love maps and I want to talk about a map that hopefully we will be able to project onto the screen. I think you each may have a copy of this in your materials. There are two pages to this map. I want to make sure you have it.

The map is one produced by Will Turner at CI. It is a wonderful map. It is a color-coded map of the world that shows the value of ecosystem services country by country and is color coded. Blue is a low value, yellow is the highest.

If you look at that map and you look at the second page in Southeast Asia, it is essentially a map of Myanmar and the Mekong River. Because those countries have rivers that feed their

people, they have forests that sequester carbon, they still have what most of the rest of the region has lost. And those countries are desperate to find a way to grow their economies without losing those assets that are so obvious on the map.

You can see what happens—you already talked about what happens when you get it wrong, the haze in Singapore, the rivers that are polluted in parts of China. You can see what might happen in the Mekong River if Lao develops its dams with disregard for the fisheries and the rice bowl that are downstream.

This is also a part of the world where climate change has a disproportionate impact. Of the 10 countries that are most impacted by climate change around the world, 6 of those are in Asia, 4 of those are in Southeast Asia, where the population is so crowded along the coast that they are enormously impacted by what happens with sea-level rise.

I recently had the chance to spend a morning with the President of Myanmar and almost his entire Cabinet here in Washington, DC. We spent the morning talking about the future of the country. Probably more than any other leader that I have had a chance to meet in the world, any other head of state, he was eloquent about the choices that are in front of him.

He has studied dam construction throughout Europe to determine which types of dams have less impact on the free flow of rivers. He has studied forests in his own country and his staff has mapped forests and which ones have the highest value. He spoke eloquently about the importance of nature in Myanmar and making the right smart choices about the future of his country, so that when they build the infrastructure, build the dams, build the roads, build everything else, that they choose smartly, so they keep the best of what our Ambassador to Myanmar calls “the heart and soul of the country.”

Sadly—and I will talk about this at the end of my testimony—our policy toward Myanmar is sadly devoid of the environment as a priority. One of my main messages today is to reinsert that as a higher priority in our engagement with that country.

There are other smart choices that we see in the region and it is all a question—I think that part of the region sees a chance, certain countries see a chance to leapfrog over their neighbors in the use of new technologies, whether it is energy, dam construction, and the rest. I think this is where our country can provide an enormous value, both through technical assistance and also through brokering exchanges and even providing surgical support and assistance where it matters most.

I will give you some examples. On deforestation, traditionally our community addressed deforestation by creating parks, and parks are super important. But the gentleman from USAID spoke eloquently about the role of big companies in reducing deforestation, particularly companies that source commodities from around the world. At WWF we have identified the 100 biggest companies that control those commodities that have the biggest impact on deforestation. We now have MOUs with 56 of those companies.

Those companies represent a tremendous force to engage not only governments, but with our government, in creating policies that can drive new food production away from forests and toward

land that is already degraded. It is a really elegant solution. But we need the power of the market and we need the right kind of policies to make it so.

You have spoken about fisheries. A disproportionate amount of the population of Southeast Asia depends on fish for food and one of the signature overseas programs of USAID has been the Coral Triangle. Building the right governance system in that part of the world is intrinsically important to keeping those fisheries intact and maintaining stability in that part of the world.

Then last but not least is rivers. I had a chance to be at the Friends of the Lower Mekong meeting last year and sat with Secretary Clinton and representatives of key countries in Cambodia. It is a classic complicated case of the commons, where if we can find a way to put the value of that river on the table for providing fish in Cambodia and for providing water and siltation to the rice paddies in Vietnam and for providing power in Lao, put all those on the table, and look at what happens when you build this kind of dam versus that kind of dam, what happens downstream, my belief is we could knit together those countries to incentivize the right kind of solutions in dam construction. Then our country could play a role in not only providing some technical assistance, but helping to broker that kind of agreement between those countries, where their futures are bound up together.

So in conclusion, I would say three things. One is: Help make sure the environment is at the forefront of our engagement in Myanmar. The second is these regional priorities. Ecosystems do not stop at national boundaries and supply-demand dynamics do not, either. So the regional initiatives we have for the Coral Triangle and the Mekong are enormously important. Then the last thing is just to go back to the private sector. The kind of relationships we are beginning to build with the private sector could be enormously influential in that part of the world, and finding creative ways to work with companies like Wal-Mart or Coke or Ikea or Mars or Cargill in driving the right kind of food production and incentivizing the right kind of growth strategy holds enormous promise.

Thank you very much.

[The prepared statement of Mr. Roberts follows:]

PREPARED STATEMENT OF CARTER ROBERTS

Mr. Chairman, Ranking Member, and members of the subcommittee, thank you for the opportunity to testify before you today. My name is Carter Roberts, and I am President and CEO of World Wildlife Fund U.S. For 50 years, WWF has been protecting the future of nature. WWF is the world's largest private conservation organization, working in 100 countries and supported by 1.2 million members in the United States and close to 5 million globally. Our unique way of working combines global reach with a foundation in science, involves action at every level from local to global, and ensures the delivery of innovative solutions that meet the needs of both people and nature.

The issues being considered by the subcommittee today—the environmental sustainability and food and water security of countries in East Asia and the Pacific—are of critical importance, not only to the countries in those regions and their citizens, but to all of us. The Obama administration's Rebalance to Asia comes at a time of growing recognition in that region of how the long-term prosperity of most Asian and Pacific countries is tied to wise management of their “natural capital,” including their forest, marine, and aquatic systems and wildlife resources.

Such recognition is in part a natural consequence of the region's rapid economic growth. It is common to see increased attention paid to environmental quality and

the protection of natural areas as populations become more prosperous. But it is also a response to the increasing degradation of natural resources, which is a by-product of a growth model that has often paid scant attention to environmental sustainability.

Examples of such degradation abound. We have recently seen another bout of severe haze pollution in Southeast Asia from the use of fire for clearing tropical forests in Indonesia. Overfishing in the marine areas surrounding the “Coral Triangle” countries has led to declining local food security and threatens the most valuable tuna fisheries in the world. In the Mekong Basin, the planned expansion of large-scale hydropower schemes threatens to severely impact Cambodia’s freshwater fisheries, undermine water supplies in Lao PDR, and disrupt the rich sediment flows upon which Vietnam depends for its Mekong Delta rice production. Throughout the region, the intensifying impacts of climate change are exacerbating and adding to these challenges. How countries, including the United States, respond to these challenges now and over the next few years will shape Asia’s food, water, and environmental security for decades to come.

There is much to be concerned about regarding the current state and trajectory of Asia’s natural resources and the environmental impact of the region’s rapidly growing economies around the globe, and I touch on a number of these concerns below. But there are also many reasons for optimism. I would like to recount a recent conversation I had with President Thein Sein of Myanmar during a recent visit of the President and his Cabinet to Washington. WWF had the opportunity to organize a dialogue with the President and senior staff focused on the role of sound renewable resources management in Myanmar’s sustainable development. One might think that this issue would be a low priority for Myanmar’s President, given the range of difficult issues facing the country. With the country’s recent emergence as a fledgling democracy and still nascent integration into the global economy, were prepared to inform the President and his Cabinet on the need for Myanmar to wisely manage its rivers, forests, coasts and wildlife in order to create a sustainable economy and ensure the country’s food and water security. But President Thein Sein demonstrated a profound understanding of, and appreciation for, these concepts and expressed his desire to put Myanmar’s economy on a development path that takes advantage of the country’s impressive natural capital while respecting it and protecting it for the future. He characterized Myanmar’s wildlife and other living natural resources as the heart and soul of his nation.

Like other Asian and Pacific leaders, President Thein Sein is seeking advice on how best to achieve truly sustainable development, actively investigating lessons to be drawn from experiences in the United States and other countries that have faced similar challenges. His willingness to devote more than 2 hours of his own time and that of his entire delegation to this subject during their short trip to Washington speaks to this desire and openness.

We have seen similar political will among the leaders of the Coral Triangle countries of Southeast Asia and the South Pacific. Known as the “Amazon of the Seas,” the Coral Triangle is the most biologically and economically valuable marine ecosystem on the planet. Encompassing nearly 2.5 million square miles of coastal and oceanic waters in Southeast Asia and the Western Pacific, the region covers just 3 percent of the globe but boasts more than half of the world’s reefs, 76 percent of its known coral species and the greatest remaining mangrove forests on the planet. The marine and coastal ecosystems of the Coral Triangle directly sustain the livelihoods of more than 130 million people and contribute an estimated \$2.3 billion each year toward the region’s economies. The health of the Coral Triangle is also important to global commerce and food security, including here in the United States. Eighty-six percent of the seafood consumed in the United States is imported, with a significant portion originating from the Coral Triangle. The region supports the nursery grounds for the planet’s richest tuna fishery, worth over \$1 billion annually.

Pressures due to widespread poverty, rapid development and global demands have placed enormous strains on the Coral Triangle’s natural resources: over the past 40 years, more than 40 percent of the region’s reefs and mangroves have disappeared, leaving many habitats and species vulnerable to extinction. Overfishing, destructive fishing practices and pollution all threaten the future of this precious seascape and its inhabitants. In response to these growing challenges, in 2009 the heads of state of Indonesia, Malaysia, Papua New Guinea, the Philippines, the Solomon Islands, and Timor-Leste signed the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI), a landmark agreement to protect the region’s marine and coastal resources and manage them sustainably.

These are just a few examples demonstrating Asian and Pacific leaders’ growing understanding of and receptiveness to the need to protect nature as the foundation of healthy and sustainable economic growth in their countries. Leaders of the region

are looking to make smart choices as they seek to break free of unsustainable patterns of resource use and development. In many cases, they see opportunities to “leap-frog” past the technologies and management systems employed by Western countries, especially with respect to their energy, transport, and telecommunications sectors.

As they confront these sustainable development challenges they need sound advice and are actively seeking to learn from U.S. experience and draw upon U.S. expertise and technology. The United States clearly has an important role to play in assisting the region’s transition to greener economic development. There are clear opportunities for such cooperation, and there are many effective approaches available to be shared. I would now like to highlight a few key areas that WWF believe to be priorities to ensure the sustainable development of the region and the health and integrity of its environment and biodiversity.

FORESTS

Deforestation is one of the great environmental challenges facing East Asia, where rates of forest loss in some countries remain among the highest in the world. Pulp and paper production and conversion to agriculture, including to monocultures such as palm oil, are among the greatest threats to the region’s forests and associated wildlife and water resources. Illegal logging associated with these industries remains a serious problem in many countries. Earlier this year, WWF released a report¹ on the state of the Greater Mekong Subregion (GMS), consisting of the countries of Myanmar, Thailand, Cambodia, Laos, Vietnam, and the Chinese provinces of Yunnan and Guangxi. WWF’s report demonstrated that the countries of the GMS (excluding China) had collectively lost nearly a third of their forest cover between 1973 and 2009, with the highest rate (43 percent) witnessed in Vietnam and Thailand. Large core areas of intact forest capable of supporting local communities and healthy wildlife populations declined across the GMS from roughly 70 percent in 1973 to only 20 percent in 2009. If deforestation continues at the same rate, the region risks losing more than a third of its remaining forests by 2030, with only 14 percent of the forest areas that are left comprising habitats capable of sustaining viable populations of wildlife requiring contiguous forest habitat. On the other hand, the report also demonstrates that, were the GMS countries to adopt a “green economy” framework with a 50-percent reduction in the annual deforestation rate and no further losses in key biodiversity areas, forest losses could be limited to 17 percent from 2009 to 2030, core forest patches would remain intact, and all of this alongside continued improvements in human prosperity.

The situation is a similar one in the rest of Southeast Asia. Unsustainable and illegal logging in Malaysia and Indonesia, particularly on the islands of Borneo and Sumatra, threatens the destruction of some of the world’s most diverse rain forests and Southeast Asia’s last intact forests, as well as the extinction of some of planet’s most unique and beloved species, including Sumatran tigers, Javan and Sumatran rhinos, pygmy elephants and orangutans. The clearing, often through burning, of vast areas of rainforest representing huge terrestrial storehouses of carbon is also a main cause of regional air pollution and a significant driver of global climate change.

Borneo and Sumatra (the world’s third- and sixth-largest islands respectively) support diverse ecoregions that house thousands of unique species and massive rivers, which cut across the landscapes and provide freshwater and transportation for the islands’ people. Borneo’s forests alone are home to more than 600 bird species and 15,000 types of plants, as well as hundreds of indigenous communities that depend on the forests for food and shelter. Only half of Borneo’s original forest cover remains due to increased production of palm oil—used in many products purchased every day by consumers around the world, from snack foods to soaps—and unsustainable logging for timber, paper, and pulp. Borneo’s rainforests are being rapidly exported and turned into flooring, furniture, and plywood products found on store shelves in the United States and elsewhere.

Economic development in Borneo is essential for poverty alleviation, but local communities fail to benefit when major companies clear their rainforests and ignore traditional land rights. Through efforts such as our Heart of Borneo Program, WWF is working with communities, companies and governments to support smart decisions that redirect the expansion of oil palm plantations onto degraded lands, enforce restrictions on the use of fire for land clearing, and set aside forest reserves to maintain local watersheds, support water security and forest livelihoods for surrounding communities, protect Borneo’s unique wildlife species and secure the global carbon benefits of that the island’s forests provide. All of this can be done

while improving land tenure, so that local communities have a clear stake in sustainably managing their forests.

Reducing illegality in the timber trade is essential to ensuring that Asia's forests can survive in the future as both a bastion of biodiversity and the basis of sustainable development. This is an area where the U.S. Government has played a critical leading role, both in its leadership with the 2008 amendments to the Lacey Act and development investments such as through Responsible Asia Forestry and Trade (RAFT), a 6-year program funded by USAID and the Department of State designed to improve forest management and bring transparency to the timber trade in Asia while also reducing deforestation and forest degradation. The program spans eight countries in Asia and the Pacific—Cambodia, China, Indonesia, Lao PDR, Malaysia, Papua New Guinea, Thailand, and Vietnam—and works with government, industry, intergovernmental organizations, international conservation NGOs (including WWF) and academic institutions to influence public policies and corporate practices. RAFT partners have helped bring nearly 3.2 million acres of tropical forest in Asia and the Pacific under Forest Stewardship Council (FSC) certification, with 4.9 million additional acres on the way. Since 2006, the number of timber concessions has grown from 5 to 59. The program has introduced nearly 1,000 wood manufacturers in six countries to new legality requirements for products exported to the United States and European Union and helped 20 factories achieve FSC chain of custody certification.

FRESHWATER

To get a sense of the critical importance of balancing development and conservation in Southeast Asia, one need only look at the Mekong River, the basin which contains one of the most productive and diverse river systems on Earth. Its connectivity and natural variability of flows support exceptional productivity, while sediments and nutrients sustain the landforms, agriculture, and marine fisheries of the Mekong Delta. The Mekong river system supports the world's largest and most productive inland fishery, at least 35 percent of which depends on migratory species. Despite long-term intensive human use of freshwater resources in the Mekong basin, the system has maintained connectivity throughout most of its area as well as much of its original ecological patterns and processes.

However, the growing need for energy in the Greater Mekong Subregion has led to an unprecedented rate of dam building, with impacts on freshwater ecosystems, the Mekong River's connectivity and flow, and the people that rely on these. Eleven dams are currently planned on the Mekong main stem, and one key concern is the lack of appropriately coordinated planning among decisionmakers for the different portions of the basin. Recent controversy has centered on the disputed Xayaburi dam in Laos, which is not the largest dam planned on the main stem, but the approval of which would set a precedent for countries, undermine the Mekong River Commission and herald even more disruptive developments. Models indicate that although the loss of connectivity from existing dams has negatively affected fisheries production in various Mekong sub-basins, declines in productivity to date have not substantially affected overall fisheries output. This will change if planned developments go ahead, with major impacts downstream and on major freshwater resources, including: threatening the rich fisheries of Tonle Sap Lake in Cambodia upon which millions depend for their protein; undermining the water supplies to Lao PDR; and fundamentally altering the nutrient rich sediment flows southward to the Mekong Delta, which support Vietnam's southern rice bowl and recharge the delta to prevent land subsistence.

Decisionmakers in the Mekong river basin face a difficult dilemma: Expansion of hydropower in the Mekong River Basin presents enormous economic potential, and could also reduce the subregion's carbon footprint, but how can countries that share the freshwater resources of the Mekong River profit from a renewable energy source such as hydroelectric power without at the same time degrading the fisheries and ecological services that support at least 60 million people? To produce energy through hydropower, up to 11 new dams are planned for the main stem of the Lower Mekong River alone. Their construction will negatively impact both wild fish populations and the many people who rely on wild fish as their major source of protein. For example, once built, a main stem dam would hinder movements of eggs and young fish downstream to the Lower Mekong floodplains to grow and those of adult fish moving upstream to spawn; harm wild fisheries in Laos, Thailand, and Cambodia by flooding upstream spawning grounds and altering nutrient input and replenishment of downstream habitats; reduce sediments and nutrients that build and feed the Mekong Delta's productivity; and degrade the functionality of the whole, interconnected ecosystem and risk exceeding thresholds that could lead to

very large and rapid negative impacts. Although dams would bring substantial additional income to the region, they could negatively impact fisheries, increase inequality, contribute to poverty, and have long-term and detrimental environmental impacts.

The question of hydropower on the Mekong is thus a representative microcosm of the larger dilemma facing East Asia and the Pacific—how to accommodate rapid development and support a rising standard of living without fundamentally undermining the environmental systems that are needed to ensure the continued health, security, and prosperity of the region's people. Other major river systems in the region face similar challenges, and there are opportunities to benefit from lessons learned from experience in the Mekong Basin.

GLOBAL RESOURCES AND ASIAN DEMAND

While these field-based and policy measures are essential, they will not be sufficient on their own. Attention also must be paid to demand-side pressures from these fast growing economies, which are creating environmental challenges not just in the Asia and Pacific region, but globally. Rising wealth and urbanization—particularly in China, Vietnam, and Thailand—means that millions are being lifted out of poverty. It also means that these countries have an increasing desire for natural resources from abroad, which can lead to major impacts on ecosystems found far beyond Asia. China's expansion into Africa is well known, and its footprint there is significant and growing. Therefore, China's approach to development and whether or not it chooses to encourage or require that resource extraction be done in a legal and sustainable manner can have a significant bearing on the health of forests and rivers in Africa and around the world.

Rising wealth and a growing middle class in Asia are also putting new and unsustainable pressure on a range of wildlife species, including many that are increasingly threatened with extinction. There is a growing appetite in East Asia for traditional wildlife products, such as carved elephant ivory, rhino horn powder, shark fin soup and tiger bone wine, access to which had until recently been limited primarily to a smaller elite class. Consumption or possession of these products is inherently a sign of status, and as the economic status of millions of Chinese and Vietnamese rapidly increases, many are turning to the purchase of ivory statues and trinkets and fad drugs made from ground rhino horn as a demonstration of their newfound prosperity.

Unfortunately, the effect on these species has been dramatic and swift. In 2011, WWF officially declared Javan rhinos extinct in Vietnam, when the last surviving individual was found killed with its horn removed. With rhino populations critically endangered throughout Southeast Asia, the illegal trade in rhino horn has found its way to South Africa, which is home to 90 percent of the planets remaining rhinos. In the past 5 years, the number of rhinos killed illegally in South Africa has risen a shocking 5,000 percent—from just 13 animals in 2007 to 668 in 2012. This dramatic spike has been driven primarily by new demand in Vietnam, where the ground-up horn is being sold as a powder that is marketed to the rich and the desperate as variously a fad drug that can prevent hangovers or a miracle cancer cure. Pound for pound, rhino horn powder is selling for more on the market than heroin or gold. There is no medical evidence to support either claim, but that has not stopped those who traffic in these endangered wildlife products from creating a lucrative illegal market for these snake oil cures: pound for pound, the price of rhino horn has now eclipsed the price of gold and heroin on the black market.

In China, it is the demand for ivory that has risen along with the middle class, with a legal internal market for ivory products (based on previous sanctioned sales of ivory stockpiles) now providing a smokescreen for the laundering of large quantities of illegally poached African elephant ivory. In 2012, the elephant population in Africa was conservatively estimated at 425,000 individuals, a reduction of at least 50,000 since 2007. In 2011 alone, the Convention on International Trade in Endangered Species (CITES) Monitoring the Illegal Killing of Elephants (MIKE) program estimated that 17,000 elephants were illegally killed across the sites that they monitor and extrapolated that this number was likely closer to 25,000 on a continent-wide basis.

Broken down on a regional basis, the situation is even more acute, with Central Africa experiencing the worst declines. Central Africa's forest elephant populations, including those in protected areas, have experienced reductions of more than 80 percent in the last 25 years, and 62 percent in just the past 10 years. Between 2004 and 2012, an estimated 11,000 elephants were killed in Gabon's Minkébé National Park alone, representing a population loss of 44 to 77 percent. In early 2012, we saw the worst single massacre on record of African elephants, when at least 350

elephants were slaughtered by gangs of heavily armed ivory poachers in Cameroon's Bouba N'Djida National Park in just a few weeks, reducing the park's population by more than half. And just this past May, a poaching gang managed to infiltrate the Dzanga-Sangha National Park in the Central African Republic, part of the Sangha Trinational World Heritage Site, where they killed at least two dozen elephants.

As would be expected, the rise in illegal killings is mirrored by the rise in seizures of ivory, most of which is intercepted en route from Africa to Asia. From 1996 to 2011, nearly 300 tons of ivory were seized, representing only a small proportion of the total illegal ivory being trafficked. From 2000 to 2011, there were 54 large-scale ivory seizures, and over half of these have occurred in the past 3 years, pointing to a surge in demand and a harbinger of the expanding participation in the illegal ivory trade by highly organized crime syndicates who see in the illegal trade in endangered species products the promise of vast profits and limited risks, given the dearth of enforcement and the meager penalties associated with it.

The impact on African countries of the Asian demand for wildlife products is not just the rapid extirpation of Africa's unique wildlife. Heavily armed poachers working to feed to the demand for ivory, rhino horn and other wildlife products will frequently kill park rangers tasked with protecting their countries' wildlife, and flourishing wildlife tourism industries, which contribute significantly to the economies of many African countries, are being put at increasing risk by the surge in wildlife poaching as tourist areas become unsafe and the wildlife they have come to see become more and more scarce.

A similar dynamic is playing out in other parts of the world: in wetlands and forests, emptied of rare reptiles and mammals that have wound up as delicacies on Asian dinner plates; and in the world's oceans, where shark species are in rapid decline, largely due to the growing trade in shark fins used to make shark fin soup. The latest research suggests that around 100 million sharks may be killed annually, often targeted for their fins.

The United States has taken a leading role in pressuring countries such as China and Vietnam to curb demand for endangered species products, both through international fora such as the Convention on International Trade in Endangered Species (CITES) and APEC, as well as through bilateral discussions, including the U.S.-China Strategic and Economic Dialogue and State Department support for technical exchanges between Vietnam and South Africa. The heightened attention recently culminated in the President's newly announced Executive order on Combating Wildlife Trafficking, which came as extremely welcome news to us and demonstrates the seriousness with which the illegal wildlife trade is now being taken given the multi-billion dollar criminal market it supports and its strong connections to transnational organized crime, corruption and financing for groups that pose security threats to the United States.

We also need to work with individual countries in East Asia and the Pacific to strengthen policies and institutional capacities to address increasing demand pressures on their resources. There are emerging examples, such as China's experimentation with market-based incentives and other policies to encourage use of renewable energy. And in Thailand, Prime Minister Yingluck Shinawatra has shown bold leadership on wildlife conservation with her recent pledge to end ivory trafficking in her country. We need to do more to encourage these smart choices and ensure that Asian and Pacific leaders take a broad and constructive view of how their future development impacts global resources and environmental quality, as well as that in their own countries.

CLIMATE CHANGE

Of course, overlaying all of the environmental and resource challenges facing the Asia and Pacific region is the growing threat of climate change and its impacts on food and water security and essential environmental systems. The Greater Mekong Subregion provides a powerful case study of how climate change will increasingly affect development in East Asia and the Pacific, with impacts on food, water, and regional security. The plight of Small Island States in the Pacific captures global sympathy. Several are already actively contemplating future refugee status for their citizens, facing the very real prospect that rising seas will inundate or make uninhabitable their islands in the near future, erasing their cultural heritage and making them stateless peoples. But mainland Asia also faces significant, imminent risks due to climate change.

The Intergovernmental Panel on Climate Change has identified the Mekong Delta as one of the three most vulnerable deltas on the planet to climate change impacts, including sea-level rise, saline intrusion and increasingly severe storms that prom-

ise to erode coastlines and undermine coastal ecosystems. Changes to average temperatures and water availability from precipitation and runoff are also likely to have adverse impacts on the Mekong River and its ecosystems. Temperature changes can affect rates of growth and reproduction for individual species and can also alter species distribution and ecosystem processes, such as nutrient cycling. WWF predicts that climate change impacts will accelerate the extinction of some species, given the high rate of endemism and habitat fragmentation found in the Mekong basin. Changes in the seasonal flow pattern in the Mekong River basin will strongly influence future species composition and ecosystem productivity. Changes in temperature and precipitation in the basin may also affect the very nature of the region's wetlands—vital freshwater systems that are used for rice cultivation and freshwater fisheries, and which help to mitigate floods and erosion.

Sea-level rise will have significant negative impacts in the Mekong Delta region because of the delta's high population density, which is supported by productive wetlands and estuaries that are in turn maintained by naturally fluctuating water levels and input of fresh water from the river. These upstream inputs of freshwater deliver much-needed nutrients and sediments, which are critical for wetland soils to accumulate and prevent plants from being inundated.² Sea level rise and salt-water intrusion threaten to upset this natural balance and undermine the Delta ecosystem. If hydropower development proceeds on the Mekong's main-stem, dams will block sediment that flows southward and rebuilds the delta. As sediment is trapped by dams, the reduction in the amount reaching the river mouth will decrease the capacity of the delta to replenish itself, making it even more vulnerable to sea-level rise, saline intrusion, and erosion. With nearly a quarter of Vietnam's population located in the Mekong Delta, the combined impacts of the proposed main-stem dams and climate change will pose significant social and economic challenges.

The human consequences of unmitigated climate change on the Mekong are hard to imagine. Projections across the Mekong basin show an array of climate change effects, including a potential sea-level rise of a meter by the end of the century. If unaddressed, a meter rise in sea level could submerge more than a third of the Mekong delta, home to 17 million people and source of nearly half of Vietnam's rice.³ Already, we are witnessing erratic changes in flood patterns in the Mekong and other rivers of the region. Thailand's 2012 growth was all but wiped out by costs associated with its devastating flood. Combined with sea-level rise, we can anticipate breakdowns of roads and other infrastructure, leading to the increasing likelihood of economic and social instability. Even the more modest predictions of how the region and its communities, ecosystems and economies may be altered suggest that, without significant steps to reverse course, the humanitarian impacts of accelerating climate change in the Mekong are likely to present new security challenges for both GMS countries and the international community in the 21st century.

ENVIRONMENT AND SECURITY

Climate change is the most obvious threat to security of a region that is highly vulnerable to rising seas and extreme weather—Asia has 6 of the 10 countries most vulnerable to natural disasters, with four of them in Southeast Asia, however there are numerous other connections between environmental degradation and regional security. Competition over declining fisheries contributes to resource conflicts in the South China Sea. Much of East Asia's population lives in coastal areas, and Pacific countries fear for their very existence in the face of increasing sea levels, as well as rising temperatures and acidity, which can exacerbate typhoons and droughts and threaten to undermine the marine food chain that supports the regions fisheries. Countries of the region need help to build their climate change resiliency, lest they risk even greater economic losses from disasters and the creation of environmental migrants who could spill across national borders. Improving environmental management also links closely with the promotion of democratic principles such as transparency, vibrant civil societies, and human rights, including access to water supply and indigenous peoples' use of forests.

U.S. ROLE AND OPPORTUNITIES

All of this reinforces the importance of enhancing U.S. support to leaders in the region seeking to make smart decisions about the management of their environment for local and global benefit. Bilateral programs—through USAID, Millennium Challenge Corporation, State Department, or under targeted partnerships, such as the Comprehensive Partnership with Indonesia, or the Strategic and Economic Dialogue with China—offer good opportunities to cooperatively identify and agree on ways to effectively address environmental considerations in national development. As noted, there is a great receptiveness to and opportunity for U.S. cooperation with Myanmar

to ensure that the country finds and follows a green economy path. Bilateral cooperation is complemented by legislative provisions under the Lacey Act and the Tropical Forest Conservation Act, which respectively enhance control of the global illegal wildlife and timber trade, and encourage innovative approaches to financing forest conservation.

Beyond bilateral cooperation, the Rebalance to Asia should include increased attention to leveraging regional partnerships and organizations as well as making good use of multilateral mechanisms. Through the Lower Mekong Initiative—and in cooperation with others working to assist countries of mainland Southeast Asia in their development—we need to help ensure that smart choices are made on how to best use and conserve freshwater resources, including through integrated river basin analysis and planning, encouraging ecosystem-based approaches to hydropower development, incorporating schemes to value and monetize the services provided by upstream forests and watershed ecosystems, and factoring in adaptation and resilience strategies for freshwater systems in the face of advancing climate change. Elsewhere in Southeast Asia and the Pacific, the U.S. Government—alongside WWF, the Global Environment Facility, the Asian Development Bank, and other partners—has backed the Coral Triangle Initiative through the Coral Triangle Support Partnership (CTSP), a unique consortium of U.S. Government agencies and the world's leading conservation NGOs, including WWF. CTI governments are now developing a regional framework for sustainable fisheries management, enforcement and improved management of Marine Protected Areas across the region. CTSP is winding down, and CTI countries are making smart choices regarding management of their marine resources. They continue to need U.S. support. Similarly, the trilateral Heart of Borneo Initiative offers opportunities for improved management of the region's largest remaining rainforest. APEC and ASEAN hold tremendous potential for improving understanding of and cooperation on the greening of economies. Activities supported by multilateral organizations and mechanisms—such as the Global Environment Facility, Climate Investment Funds, and Asian Development Bank—also contribute strongly.

Finally, there remain unrealized opportunities to incorporate environmental provisions into the framework of the Trans-Pacific Partnership (TPP), which just concluded today in Malaysia its 18th round of negotiations. As part of the Executive order on Wildlife Crime, the President declared that “the United States shall seek to reduce the demand for illegally traded wildlife, both at home and abroad, while allowing legal and legitimate commerce involving wildlife.” As implied in this statement, there is an important legal trade in wildlife products—including commodity products such as timber and fish—and this legal trade, which is of great economic value to many countries, including the United States, is undermined by illegality throughout the supply chain. This is why it is critical that international trade agreements, such as the emerging TPP, incorporate strong conservation provisions to ensure that natural resources are legally harvested and traded and developed sustainably in source countries.

Renewable resources and wildlife are highly traded among the 12 TPP partner countries, which represent major producers, exporters and importers of seafood, wood and other goods derived from natural resources. The TPP countries represent eight of the world's top 20 fishing nations, contributing over 28 percent of the global marine catch, with almost 33 percent of global fish product imports and 24 percent of exports. They account for 17 percent of global shark imports and 28 percent of global exports by value. They account for 34 percent of global timber and pulp production and 24 percent of total trade value worldwide. They also represent significant importing, exporting, and transit countries for legal and illegal wildlife products, and some countries, such as Vietnam, are the major global markets for CITES-listed species.

Where natural resources are poorly managed, the demand generated by TPP markets can drive illegal activities and unsustainable practices. This is why the TPP presents the participating countries, including the United States, with a unique and important opportunity to promote economic growth in the context of a far-reaching and ambitious 21st century trade agreement, while also recognizing the fundamental need to sustainably manage natural resources and protect wildlife from illegal trade. If executed along these lines, it can also serve as a strong model for future such agreements.

CONCLUSION

Mr. Chairman, Ranking Member, and members of the subcommittee, I believe that the East Asia and Pacific region—in fact all of Asia—is at a critical juncture with respect to incorporation of environmental considerations into future develop-

ment. It will be in neither U.S. nor Asian interests for the region to continue with the current model, which has led to severe environmental degradation and depleted natural capital. There is widespread understanding of this among the region's leaders, who strive to make smart decisions regarding sustainable use of their natural assets for the benefit of their people and the planet.

While much is known regarding the principles behind this transition to a more sustainable development path, each country must define its own way. This will require strong engagement from civil society, academia, the private sector, and public sector programs such as those supported by the U.S. Government to ensure that smart choices are made and resources wisely used. It is strongly in the U.S. interest to see that this scenario is realized. If we act together now, the region can lock in a new development model which will lead to continued expansion of its prosperity based in large measure on protecting and enhancing the value of natural capital.

End Notes

¹Ecosystems in the Greater Mekong: Past trends, current status, possible futures. WWF. 2013.

²Mekong River Commission. 2010 "State of the Basin Report: 2010." Mekong River Commission, Vientiane, Lao PDR.

³Institute of Strategy and Policy on Natural Resources and Environment (Viet Nam) 2009 "Vietnam Assessment Report on Climate Change (VARCC)."

Senator CARDIN. Thank you for your testimony.
Dr. Economy.

STATEMENT OF ELIZABETH C. ECONOMY, PH.D., C.V. STARR SENIOR FELLOW AND DIRECTOR FOR ASIAN STUDIES, COUNCIL ON FOREIGN RELATIONS, NEW YORK, NY

Dr. ECONOMY. Thank you very much, Chairman Cardin. It is a pleasure to be here to have the chance to talk about China, and a pleasure, of course, to sit on the same panel with Carter Roberts.

China's extraordinary economic growth over the past 30 years has produced, I think by anyone's imagination, a crisis in the country's water resources. Skyrocketing demand, inefficiencies in the way China uses its water, and pollution have left 400 cities out of roughly 660 without sufficient water and 110 of them facing serious scarcity. About a quarter of China's land is seriously degraded or technically classified as desert. Desertification is advancing at a rate of about 600 square miles per year.

Just this past May, the Chinese Government announced that 28,000 rivers out of 50,000 rivers have simply dried up since the 1990s. Meanwhile, there has been a serious deterioration in water quality. According to this year's report from the Ministry of Environmental Protection, about a quarter of the water that flows through China's seven major rivers and their tributaries is considered unfit even for agriculture or industry. About 90 percent of the groundwater is moderately or heavily polluted.

For Chinese leaders what matters most, of course, is how this water scarcity and water pollution affects a range of additional challenges that they face in terms of public health, the economy, and social stability. In terms of public health, about 600 million people in China drink water that is contaminated and 190 million of those drink water that is so contaminated it is considered harmful to their health.

Along China's rivers scientists have identified about 450, upward of 450, of what they call cancer villages, just villages where the rates of cancer are much higher than the norm. Water pollution causes about 60,000 premature deaths annually in China.

In terms of the Chinese economy, numbers are very sketchy on this, but the World Bank in 2007 estimated that water scarcity and pollution cost the Chinese economy the equivalent of 2.3 percent of GDP. This is from lost agriculture, fisheries, and industrial output, as well as from missed days of work and hospital stays. In Beijing, for example, in 2009, 49 factories were forced to close because of lack of water.

Most important, however, is how the environment affects social stability, and you discussed this a little bit, I think, or hinted at it in the first panel. In 2010 China recorded 180,000 protests. In 2012 the environment surpassed illegal land expropriation, land grabs, as the largest source of social unrest in the country. The Internet really has transformed people's access to environmental information and their ability to organize, and this is producing enormous bottom-up pressure on the Chinese Government.

China's strategy for addressing its water challenge is twofold. First is going outside its borders to meet its food security, energy, and other developmental needs. China has become the third-largest investor in agricultural land overseas after the United Kingdom and the United States. It is the largest source of illegal, unreported, and unregulated fishing, and it is damming and diverting, as you've discussed, transboundary rivers in ways that are engendering concern in its downstream neighbors in Central, Southeast, and South Asia.

Beijing is also adopting a wide range of measures at home, including planned construction of desalination plants along the eastern seaboard, large-scale river diversion projects within their own country, waste water treatment plans, and experiments with water pricing and water trading. Yet the political economy of the country in many respects undermines the government's efforts. For example, despite numerous laws and regulations on the books, an estimated two-thirds of Chinese factories simply dump their waste water untreated into nearby lakes and rivers. Beijing has been unwilling to move forward on what I think people in the United States and elsewhere would consider to be the pillars of effective environmental protection: transparency, official accountability, the rule of law, and an enforcement system of economic incentives to promote water conservation and recycling and disincentives to pollute.

Because of broader political fears, Beijing also limits the role of the media and environmental NGOs, which are the most dynamic and progressive elements in Chinese environmental protection efforts today.

Clearly, it is early days in the Xi Jinping and Li Keqiang era and rhetorically Premier Li has been a strong supporter of environmental protection. But his predecessor Premier Wen Jiabao was also quite supportive and did not accomplish as much as he would have liked. So I think we need to wait to see what this new government is able to accomplish.

In terms of what the United States might do within the context of the rebalance, I have a couple of thoughts, which I will go through very quickly since my time is almost up. I do think we have an enormous array of agreements, memoranda of understanding, and other things with China already on the environment.

I believe the United States ought to focus significantly on the fundamentals of good governance, for example a program on the rule of law, because I think this type of capacity-building is essential. It is at the heart of China's continued failure to improve its environment. Despite having access to scientific knowledge or to technology, year after year China misses its pollution reduction targets, and why is that? It is because of the governance issue.

I also think we should be targeting areas that affect the United States directly—U.S. interests directly. For example development of shale gas is an area where the United States has moved forward relatively rapidly in recent years to develop environmental regulations. China is moving forward aggressively to develop its own shale gas reserves. It wants to become active, it already is active, in the United States. And yet they are talking about a 3-to-5-year lead time before they are going to have any regulations on the books. So I think this is an area that is ripe for cooperation.

I also have a few other ideas, but I have gone past my time, so I will stop there.

Senator CARDIN. We will give you another minute or two if you would like to complete your statement.

Dr. ECONOMY. OK. I think the second thing is the Trans-Pacific Partnership. I think here there are two steps to this, of course. The first is that the United States has to ensure that there is a strong environmental component with some enforcement mechanism and commitments on issues such as fisheries management. The second then is to bring China into the agreement, which will be a number of years in the making.

But I think it will be one of the most effective ways to engage China, because if we look at something like the World Trade Organization that really is one of the most effective ways that we have of holding China to account and reining in some of their most egregious behaviors. I think that TPP has a similar prospect on some of these environmental issues of working with China.

I think the third point is that we ought more often to think about working with China through a multilateral framework. Too often the United States approaches China just bilaterally, but I think in two distinct ways this is important. First, Japan, the European Union, and Canada are all very active as well in helping China in its environmental protection efforts, but we do virtually no consultation with our closest allies to try to make sure that we are reinforcing rather than replicating similar efforts. I think if we could work together there would be enormous synergy. So I think that is one thing we ought to do.

Then the second I think is really to do more of the work that the first panel was talking about, as well as Carter Roberts here, about working with regional partners and helping develop their capacity, because from everything, the Mekong River, but as well looking at the development of fisheries in the South China Sea and the East China Sea and the potential for greater conflict to emerge, I think the United States has a very important role to play there.

I will stop there.

[The prepared statement of Dr. Economy follows:]

PREPARED STATEMENT OF ELIZABETH C. ECONOMY

How China manages its water resources over the next 5 to 7 years has profound implications not only for the Chinese people but also for the Asia-Pacific region and beyond. Within China, water supplies—already scarce in many parts of the country—are diminishing and contributing to a range of serious economic, health, and social challenges. Spillover effects, such as damming and diverting transnational rivers, a push to acquire arable land abroad, and increasing conflict over regional fishery resources are also being felt well outside the country's borders. China's leaders have adopted a number of measures to try to address the country's growing water crisis, but these have fallen woefully short of the task at hand. In the context of the U.S. Rebalance to Asia, China's water challenge, if not addressed, is a potentially destabilizing force within the region and suggests the need for targeted collaboration with Chinese actors as well as stronger cooperation with regional partners.

THE NATURE OF THE CHALLENGE

China's per capita water resources are just over one-quarter that of the world average, and compounding the challenge, within China are highly unevenly distributed. Northern China possesses approximately 40 percent of the country's total population, half its agricultural land, and more than 50 percent of its GDP, yet receives only 12 percent of total precipitation. Southern China, in contrast, receives roughly 80 percent of the country's total precipitation, but severe water pollution dramatically reduces its natural advantage.¹

Rapid economic growth has exacerbated China's water challenge. Water is consumed without consideration for future demand. Industry, which accounts for about one-quarter of China's total water consumption, uses anywhere from four to ten times more water per unit of GDP as other competitive economies. Water for energy is a particularly critical source of industrial water use—according to the Ministry of Water Resources, in 2010, China's coal mining, processing, and electrical-generating industries alone accounted for almost 20 percent of all water consumed nationally.² Agriculture demands the largest share of the country's water resources (about 60 percent), but household and industrial demand have increased dramatically over the past decade as individual wealth and the overall economy continue to expand. And as China urbanizes, the problem will only increase: urban residents use two and a half times more water than their rural counterparts.

At least 10 provinces in China are below the World Bank's poverty level of 1,000 cubic meters per person per year; and according to Jiao Yong, vice minister of water resources, in 2012, China had more than 400 cities that lacked sufficient water, 110 of which were facing serious scarcity.³ In Beijing, per capita water resources decreased to only 120 cubic meters per year in 2011⁴; by comparison, the global annual average per capita is 1,385 cubic meters.⁵

China's widespread pollution poses an additional challenge. Reports concerning levels of pollution vary widely, but none is positive. Overall, the Ministry of Environmental Protection reports that approximately one-fourth of the water that flows through China's seven major river systems and their tributaries is considered not even fit for agriculture or industry. A February 2013 report by the Geological Survey of China revealed that 90 percent of the country's groundwater was polluted.⁶ A year earlier, Vice Minister of Environmental Protection Wu Xiaoqing claimed that 40 percent of rivers and 55 percent of groundwater was unfit for drinking.⁷ Even water that is treated cannot be safely consumed from the tap. In late 2012, the Chinese newspaper, the Southern Weekend, featured an interview with a married couple, both of whom were water experts in Beijing. They stated that they had not drunk from the tap in twenty years, and have watched the water quality deteriorate significantly over just the past few years,⁸ even while state officials claim that more than 80 percent of water leaving treatment facilities met government standards in 2011.⁹ In rural China, a reported 320 million people do not have access to safe drinking water.¹⁰

According to one report by Century Weekly, there are a number of reasons for differing assessments of the country's water quality: (1) the frequency of testing at treatment plants is too low, and only 40 percent of the treatment plants in China's 35 major cities have the capacity to test for all 106 indicators in any case; (2) there are only a few independent water-quality monitoring bureaus, and most water testing is done in-house by the same water-treatment plant being evaluated; (3) there is weak transparency from local governments as to the results of the tests; and (4) no water testing accounts for the contamination that occurs from the aging and degraded pipes through which the water is transmitted to Chinese households.¹¹

Most important to Chinese officials and to the Chinese people is what their country's water challenge means for their health, economic well-being, and social stability.

Impacts on Public Health

Chinese scholars and activists as well as foreign analysts have started to document the linkages between the country's growing pollution and its rising public health challenges. According to Wang Zhangsheng, a professor at Tsinghua University's School of Environment, much of China's water contains organic compounds that can impair the immune system, affect fertility, cause cancer, or interfere with the nervous system. The impacts can take as long as 10 or 20 years to emerge.¹² In 2010, Lee Liu, a geographer at the University of Central Missouri, reported in the magazine *Environment* that he had identified 459 cancer villages—villages in which cancer rates were significantly higher than normal. Most were clustered around rivers with the lowest grade of pollution on the government's five-point scale. Some of these villages had cancer rates 30 times greater than the national average.¹³ In February 2013, the government-financed newspaper the *Global Times* took the unusual step of acknowledging the existence of these cancer villages and their link to pollution. Along with a map of cancer villages, the Weibo account of the *Global Times* stated that “. . . because of chemical poisoning ‘cancer villages’ and other serious [threats to] social health have begun to emerge in many areas.”¹⁴

The negative impacts of water pollution are not limited to China's water supply. Chemicals and pollutants that seep into rivers and groundwater also find their way into food crops and eventually onto Chinese tables. A consistent diet of cadmium-laced rice has caused bone softening and weakness in some southern Chinese villagers. And according to the *China Economic Weekly*, in 2011, as much as 12 million tons of grain—enough to feed 40 million people—were contaminated with heavy metals absorbed from the soil.¹⁵ Although the Ministry of Environmental Protection and Ministry of Land Resources completed a 5-year study of soil contamination in 2012, other than reporting that 10 percent of the land is contaminated with heavy metals, they have refused to release the results, calling the report a “state secret.”¹⁶

Economic Costs

Measuring the economic costs of water pollution and scarcity is notoriously difficult. In 2007, the World Bank calculated the costs of China's water crisis to be 2.3 percent of GDP, of which 1.3 percent was credited to the scarcity of water and the other 1 percent to the direct impact of water pollution.¹⁷ In Beijing, for example, 49 factories closed in 2009 due to water shortage.¹⁸ And in one of China's leading economic centers, Chongqing, which sits on the banks of the Yangtze River, local officials estimate that dealing only with the effects of water pollution on local agriculture and public health at 4.3 percent of GDP.¹⁹

These costs are only likely to rise as scarcity increases. In March 2013, Beijing announced that more than half of Chinese rivers have “disappeared” since the 1990s due to climate change, industrial development, and large hydroelectric projects.²⁰ This changing water landscape will have significant impacts on future agricultural and industrial development.

Social Unrest

In 2010, the number of reported social protests in China reached 180,000²¹; and in 2013, the environment surpassed land expropriation as the leading cause of social unrest in the country.²² The rule of law in China is only weakly developed, and without effective legal redress for environmental wrongdoing, victims of environmental pollution often resort to demonstrations to draw attention to their plight.

The advent of the Internet has further contributed to the ability of the Chinese people to bring bottom-up pressure on officials: Internet petitions, water pollution maps demarcating polluting factories, and pictures of polluted sites or protesting Chinese are all central to civil society efforts to reform the system of environmental protection. Urban residents have also become skilled at using the Internet or cell phone texts to organize protests, most commonly against government plans to site factories or garbage incinerators near their communities. In July 2012, for example, in Qidong, north of Shanghai, thousands of people demonstrated violently in opposition to a waste water pipeline from a paper mill because they believed it would pollute their coastal waters.²³ In response to the local government's unwillingness to listen to their concerns, the local citizens stormed local government offices and caused \$20,000 in damage. Their protest was inspired by another demonstration earlier that same month in Shifang, Sichuan province, roughly 1,000 miles away,

that the Qidong residents had tracked via the Internet. In both cases, the local governments halted the projects in the face of the citizen unrest.

REGIONAL AND GLOBAL IMPLICATIONS

China's need for water to fuel its growth and feed its people also has far reaching implications for the rest of the world. To meet its food security needs, China is seeking land abroad; to address its declining fish catch, it is pushing further into contested waters; and to meet its need to supply its factories, land, and people with energy and water, it is expanding its network of dams and large scale hydropower plants.

Fishing in Distant Waters

In 2012, China's State Oceanic Administration completed its 8-year survey of marine resources and discovered that 90 percent of coastal cities suffer from intermittent water shortages; mangrove swamps have decreased by 73 percent and coral reefs by 80 percent since the 1950s, and coastal wetlands have shrunk by 57 percent.²⁴

Pollution has taken a severe toll. Three-quarters of discharges into estuaries fail to meet regulatory standards. The area of coastal waters that earned the worst official pollution rating increased by more than one-third from 2011 to 2012 from 44,000 square kilometers to 68,000 square kilometers.²⁵ According to Chinese fishermen, a decade ago, it was possible to catch fish about 90 nautical miles from the coast but now they have to go 130 to 160 nautical miles, and the catch has dropped by three-quarters during the same time period. In addition, the number of types of marine products with commercial value has dropped from 70 to 10 in recent years.²⁶

As fish stocks in Chinese coastal waters have become depleted, Chinese fishermen have become more deeply engaged in international waters. In 2011, 470 Chinese fishing boats were sent back by South Korean Coast guards for illegally entering South Korean waters. More than 90 percent of Chinese companies engaged in distant-water fisheries are private and small,²⁷ yet according to some analysts, they are increasingly coordinated with Chinese maritime authorities. As Lucio Blanco Pitlo suggests, "In April 2012, Chinese fishermen in the Bajo de Masincloc (Scarborough Shoal) were about to be apprehended for illegal fishing but were able to radio Chinese maritime surveillance ships to intercede on their behalf. Fishermen have become securitized."²⁸ While conflict is most regularly reported with China's neighbors, such as Vietnam, the Philippines, and Japan, according to some sources, the "most extreme" illegal, unreported, and unregulated fishing by Chinese has taken place in West African waters. A 2013 report by scientists at the University of British Columbia estimates that the total catch of some 3,400 Chinese fishing vessels is 4.1 million tons (worth more than \$11 billion), but that only 9 percent of China's total catch in Africa, as well as in other international waters, was reported to the United Nations, complicating efforts by African nations to manage their stocks.²⁹ (These numbers are disputed by the United Nations Food and Agricultural Organization as too high.) Some of these catches may be legal, resulting from agreements between China and host countries that have not been made public, but the sheer magnitude and unreported nature of the catch is enough to raise alarm bells throughout Africa and the developing world.

Securing Food

China has historically placed enormous importance on food security and food self-sufficiency. Increasingly, however, scarce water supplies and lack of arable land have driven China outside its borders to ensure this food security. According to one study published in 2013, China is responsible for about 7 percent of all cross-border land purchases (i.e., purchases by entities from one country of land in others), third in the world, well behind the United Kingdom and just behind the United States.³⁰ However, the rate of its acquisitions is increasing rapidly.

Chinese land and agricultural investments in different parts of the world take varying forms and serve different purposes. In African countries such as Zambia and Senegal, Chinese-invested farms are typically smaller-scale—generally under 5,000 hectares—and often serve local Chinese communities, such as those that emerge around particular resource or infrastructure investments.

In other countries, such as Brazil and Australia, China has sought larger stakes, generally to meet needs in China. Chinese companies' preference is to own land outright to ensure "product safety, lower production costs, and better profits."³¹ Where owning land outright is not possible as in Brazil, they are investing in infrastructure and processing facilities that allow them to purchase soybeans directly from Brazilian farmers, circumventing multinational grain companies.³² In a number of countries, such as the Philippines, Brazil, Argentina, and Australia, there has been

pushback—particularly from local populations—where communities have either passed laws or rejected land purchases by Chinese companies. Concerns vary by country, but range from fears over the export of Chinese farmers to control of valuable arable land by Chinese state-owned enterprises.

Damming and Diverting

China has more dams than any other country in the world, and between 2007 and 2020, it plans to triple its hydropower capacity. According to Ma Jun, director of the Chinese NGO Institute of Public and Environmental Affairs, many Chinese rivers simply will not be running in 10 years if China meets such hydropower goals.³³

China's hydropower plans and water needs also have significant implications for the country's neighbors. Several of Asia's longest and most important rivers begin in the Himalayas and the Tibetan Plateau, and China is a central player in many of the controversies surrounding shared water resources in Central, South, and Southeast Asia. Several of these conflicts, such as those centered on the water resources of the Irtysh, Mekong, and Brahmaputra Rivers are raising regional tensions as China develops plans upstream that may have dramatic impacts on the lower reaches. Damming of rivers to generate hydroelectric power alters the way that water flows; it can harm fisheries and agricultural activity downstream. When river waters are permanently diverted for irrigation, other energy production, or similar uses that permanently consume the water (unlike hydroelectric dams), they can harm those who share the water resources more. This potential for damage is often compounded by poor or nonexistent information sharing between China and others with which it shares rivers.³⁴

Across all three conflict areas—the Mekong, the Irtysh, and the Brahmaputra—China has been generally unwilling to discuss shared water rights—which it does not recognize—or even to share information concerning water levels, usage, or pollution. In each case, however, significant negative media attention and public pressure have brought China to the table. With regard to the Irtysh, for example, China's plans to divert significant amounts of water from the Irtysh through a series of canals contributed to significant negative publicity within Kazakhstan and eventually to the establishment of a 2011 Agreement on Water Quality in Transboundary Waters between China and Kazakhstan, obligating each side to monitor water quality.³⁵ The two countries are also conducting scientific research on transborder river issues. The research is expected to be completed in 2014 with an eye toward informing later agreement. Still there is no agreement as to shared water rights, although Kazakhstan may be able to leverage Chinese interests in investing in and developing Kazakh oil and copper resources to make progress in this area.

BELJING'S RESPONSE

The Ministry of Environmental Protection's annual report released in June 2013 stated that the future outlook on the quality of China's water sources is "far from optimistic."³⁶ China's leaders face a daunting challenge: how to meet the needs of their rapidly growing economy and large population with a gravely threatened water supply. Beijing's answer more often than not has been to launch large work projects and campaigns reminiscent of the Cultural Revolution era. They also have plans to invest \$650 billion on projects between 2011 and 2020, but between 2006 and 2010, they spent \$112 billion and the situation still has not improved.³⁷

The answer to China's water dilemma is not complicated in conception, but it is challenging in implementation. It rests in developing a system of incentives and disincentives that make it easy for officials and the Chinese people to do the right thing. Local environmental protection bureaus often lack the capacity to enforce laws and regulations, with too few human or financial resources to oversee the factories in their jurisdiction. Fines for polluting enterprises are often ignored or negotiated such that continuously paying fines is still cheaper than following regulations. And corruption is also a significant problem. Of the 1.3 percent of GDP that Beijing currently spends on environmental protection (note: experts believe the percentage should be closer to 2–4 percent of GDP), half finds its way into other local priorities such as infrastructure development.³⁸

Pricing reform is one element of an effective policy response. Simply put, water in China is too cheap. Experiments are under way in a number of municipalities for tiered pricing to try to distribute the burden of price rises, and Beijing has asked local governments to "carry out a tiered pricing system for urban households by the end of 2013."³⁹ However, such efforts are highly sensitive politically. A recent proposal by the China Water Investment Corporation, which is owned by the Ministry of Water Resources and the China Power Construction Corporation, to increase water tariffs by more than ten times was the object of a scathing editorial in the investigative journal Caixin, which argued, "More than half of the country's water

companies are in the red. Low prices are not the major reason companies have suffered large scale losses—it is due to lack of government investment. They need to maintain pipes and other facilities. Public access to clean drinking water should be provided by the government. Not one Chinese city has said its tap water is suitable for drinking.”⁴⁰

A sound Chinese water strategy also needs to strengthen those elements of China’s political system that support good environmental policymaking. Yet such change is even slower to emerge than pricing reform. The most dynamic and creative forces in Chinese environmental protection are Chinese environmental NGOs and the media. They collaborate—often with international partners—on a wide range of issues such as publishing maps of polluting factories, pushing local officials to publish legally mandated pollution statistics, protesting excessive dam construction, developing building energy efficiency standards, and documenting the public health consequences of pollution. Yet Chinese officials remain concerned about delivering too much information and too much power to forces outside direct government control. Thus, the media are advised not to publicize water pollution disasters, and environmental activists may be detained and arrested if they overtly challenge local officials.

The rule of law is also essential to effective environmental protection. Former deputy director of the State Environmental Protection Administration (now the Ministry of Environmental Protection) Zhang Kunmin, for example, has stated that the environment cannot truly be protected until people’s legal rights are guaranteed.⁴¹ However, laws and regulations that promote transparency are often poorly enforced. For example, Chinese scholars have noted that although environmental impact assessments are perhaps the most important form of government-supported citizen engagement in the environment, the system is deeply flawed: only a small percentage of projects are subjected to compulsory public participation; the timing and duration of engaging the public is short; the method of selecting those who can participate is often biased; and the amount of information actually disclosed is often quite limited in order to try to prevent social unrest.⁴²

Moreover, recent draft revisions to the Environmental Protection Law take a step backward in accountability and the rule of law by placing sole authority for bringing public interest environmental lawsuits in the hands of the All-China Environmental Federation (ACEF) and its provincial-level branches. Previously, some cities, such as Hainan, had permitted a wide range of people, including individuals to bring cases; and nongovernmental organizations, such as the Center for Legal Assistance to Pollution Victims, have handled over 200 environmental lawsuits for pollution victims. Since the ACEF is overseen by the Ministry of Environmental Protection, many environmental activists believe that it is unlikely to be very aggressive in bringing cases, and are protesting the draft regulations.⁴³

CHINA’S ENVIRONMENT AND THE U.S. REBALANCE TO ASIA

The U.S. Rebalance to Asia reflects a renewed and broader commitment by the United States to the Asia Pacific region, first and foremost in the realms of security and trade and investment. Expanding the parameters of the rebalance to include issues such as the environment, which is integrally intertwined with both regional security and future regional economic growth, adds an important new dimension to this U.S. effort.

The role of China in the original conception of the rebalance is somewhat complicated, recognizing both the enormous opportunities for growing U.S.-China cooperation but also the challenges posed by China’s increasing economic and military strength. Much as in the security and economic arenas, the U.S. focus in the environmental arena should be twofold: supporting targeted bilateral U.S.-China cooperation; and strengthening multilateral cooperation to enhance the efficacy of collaboration with China when possible and to bring pressure to bear on China when necessary.

Target the Fundamentals

The United States has a vast array of environmental cooperation efforts underway with China. It should develop a clear set of priorities that focus most explicitly on those areas where China needs the greatest support. For example, given the structural weakness in China’s environmental protection system, the United States could develop a signature program on the rule of law, utilizing public-private partnerships with U.S. business, scholars, and NGOs. Building on the work of the American Bar Association and others, the program could help train judges and lawyers, as well as help develop regulations and standards where appropriate. For example, China is making significant investments in shale gas development both within China and, increasingly, in the United States. It plans to have the capacity to develop 100 bil-

lion cubic meters of natural gas annually by 2020. Yet China's Ministry of Environmental Protection has said that it will need at least 3 to 5 years to develop the necessary regulations.⁴⁴ Given the strong interest of Chinese oil and gas companies in U.S. shale gas development, U.S.-China cooperation on developing environmental standards would be beneficial to both sides.

Strengthen and Better Utilize the U.S. Embassy in Beijing

The United States Embassy in Beijing achieved singular success in supporting environmental protection in China by Tweeting Chinese air pollution statistics and spurring the citizen activism that resulted in Chinese cities more accurately reporting local air quality. The Embassy should consider launching a broader environmental educational campaign via the Internet that would strengthen citizen awareness. The campaign could share best U.S. practices, provide a platform for the Ministry of Environmental Protection and Chinese environmental activists to share their work, and potentially even address sensitive issues such as food safety.

Encourage China's Participation in the Trans-Pacific Partnership

The Transpacific Partnership (TPP) represents a unique opportunity to reinforce the linkage between trade and environment in a meaningful manner. Evading environmental laws and subverting norms undermines best trade practices. The United States should ensure that a strong environmental commitment on issues such as the illegal timber trade, trade in endangered species, and illegal fisheries that allows for binding commitments and international enforcement is incorporated into the TPP. China's accession into the TPP would then represent an important new vehicle for helping ensure China's adherence to environmental laws and regulations.

Work with Other Partners in the Region to Support Transparency and Best Practices

Bilateral U.S.-China cooperation can only accomplish so much. The European Union, Japan, and Canada have all been very active in developing Chinese environmental protection efforts. More attention needs to be paid to ensuring that cooperative efforts reinforce but do not replicate each other. To the extent possible, intellectual and financial resources should be combined to deliver the strongest support. At the same time, the work that the United States has undertaken throughout the Asia-Pacific region, such as the Coral Triangle Initiative and the Mekong River Commission, are essential to strengthening the capacity of our partners to address their own internal monitoring and enforcement capacities, as well as that of China. The United States should look for additional means of enhancing its commitment to such regional agreements, as some analysts have proposed for example, by developing a system of fish import certification to reduce the proliferation of illegal fishing throughout the region.

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Senator CARDIN. Well, thank you. I thank both of you. I think your testimony has been extremely helpful to our debate.

Dr. Economy, let me just point out that the first hearing we held on rebalance dealt with good governance because we do think it is fundamental to the building blocks on all these issues, including how we deal with the environmental challenges in the region.

Your suggestion on TPP is a really good suggestion. It gives us an opportunity to include, we hope, an environmental dimension in that agreement. We will have a debate about that when we deal with trade promotion authority. I also serve on the Senate Finance Committee. That will be an issue that the Senate Finance Committee will deal with, and also the trade agreement itself as to how it deals with environmental issues.

As you point out, China's not a party to the TPP and it is not likely that they will be engaged with this type of a multilateral agreement including Western countries in the near future. So we still need to find a way to engage China.

One way that could work—and I talked to President Park of South Korea about it, it is her initiative—is to establish a regional dialogue organization similar to the OSCE. Her idea is for Northeast Asia, but there are possibilities of expanding that mechanism beyond just Northeast Asia, to include not just China, North Korea, South Korea, and Japan, but also the United States and Russia.

So there are ways that we think we can engage on a regional basis to advance sustainability.

Mr. Roberts, you raise a very good point about sustainability. I was with former President Clinton when we named the EPA building after President Clinton and he made the point that his administration understood and supported the fact that a commitment to your environment is compatible with economic growth. In fact, he made the point that the only way you are going to get economic growth, is if you respect your resources.

So as we are working with countries that still have valuable resources, but have not developed to the level that the industrial nations have, it is a point that is going to be difficult for us to make because we have already done our thing. But these nations' future economic growth very much depends upon the way they manage their resources today. The more that we can make that point, it is going to be yes, good for us because we want stable countries, but it is also good for that country.

I know that is a difficult point to make when you are sitting in a position where you are a developed nation and you have already lost some of the diversity that we are trying to protect in other countries. But it is a point that I think we have to emphasize when we can.

Well, I first want to get on the record the wildlife trafficking issue and whether there is more that you would expect the United States to do in leadership to promote management of wildlife, to preserve diversity, and to protect endangered species. Is there more that we should be doing?

Mr. ROBERTS. Yes, absolutely. You know, the numbers are stunning. We lost 30,000 elephants last year alone. On the rhino trade, South Africa was losing about 20 a year for a long, long time. Three years ago it jumped to 150, then to 350. This year we are

on track to break 650. The numbers are just growing. They are quite, quite huge. You rightly point out the connection between that and criminal syndicates and the rule of law and the rest.

There is a lot of interest in our government, in the White House, in the State Department, in Interior, and in Congress to do something about it. We have been working with—in fact, this morning we had a meeting with the wider conservation community we hosted in our office, in responding to the new Executive order that President Obama signed just a few weeks ago.

I think there is an opportunity for real legislation and we are working with the House Foreign Affairs Committee on several legislative options, including a moratorium on ivory trade in our own country, and also really making sure we have the resources to mobilize the right kind of action on the ground. It is not just enough to catch poachers.

I was just in Nepal with my daughter in fact and we were tracking rhinos on the back of elephants, and we had the opportunity to dart one one-horned rhino and put a collar around the rhino to track the rhino. We were with a colonel of the army there. Nepal has reached the zero poaching level and I asked him: How did you get to zero poaching?

He said: It was all about infiltrating the networks; it is all about intelligence. It is about going upstream. The poachers are just local guys who are following the money, and you have got to follow the money upstream by deploying the best available intelligence. That includes our resources available here, but working with other governments, too.

So I think—then last but not least is demand. That is a diplomatic issue as much as anything. The Prime Minister of Thailand just committed to ending the ivory trade in her own country. She is going to need help. I believe there are real opportunities in China and Vietnam, which on ivory and rhino horn respectively are the two main drivers.

So I think our government should do a lot more. It needs to start at home. There is some legislation that we have talked about. I think having a Senate hearing on this topic would be magnificent and would open up not only the crisis, but also the options that are in front of us, and help drive some things forward quickly that need to be done.

Senator CARDIN. Well, thank you. Thank you for that suggestion.

On Myanmar, it is a young country from the point of view of reform. The President was recently here. I must tell you—and I think I express the sentiment of all those who had the opportunity to meet with him—that he is very impressive. The jury is obviously out on what is happening in that country, but it is a country that is struggling with civilian leadership—and whether it will survive—we will see.

I would welcome your thoughts as to Myanmar, because I think we do have inroads to impact some of their decisions. The President asked for transparency—he wants to do things very openly. I thought he was very sincere about that.

So I think it would be helpful if you could perhaps give us help as to what should be on our wish list as they manage the resources

of their country, things that we should try to promote, which might be useful.

Well, we have mentioned China, which is obviously the country that gets the most attention. Dr. Economy, I would like you to tell us, knowing the current environment, how can the United States be more effective in bringing about leadership from China on environmental issues?

Dr. ECONOMY. Well, I think it is probably prudent to bear in mind that in most respects the United States leverage, impact, influence, on China is, if not marginal, it is limited. This is an enormous country. It is now the second-largest economy in the world and it will likely be the largest economy in the world in a decade or less. And it marches to its own drummer and it has its own sets of priorities.

But I do think we have seen in the past 5 to 10 years some evidence of what it does take to move China. I think in some respects it can be rather surprising. For example, I think it is excellent that we have a new climate partnership, but the reality is that getting China to move on certain issues came about on the climate change issue much more because small island states and other small countries stood up and said: You, China, need to do more.

There are certain things that matter to China. For example, still being considered a leader within the developing world matters a lot to China. It does not like to be called out on certain kinds of behavior. When developing countries unite and do ask China to change its position, sometimes that does bring about change.

I think working with actors in China that are obviously supportive of doing the right thing, identifying them and then working with them is important as well. I think that requires operating at a number of different levels: certainly the central government, but also Chinese businesses now. There is a Green Entrepreneur Society that includes some of the powerful Chinese companies, that are the largest Chinese companies, that are out there today, that are very concerned about doing the right thing on the environment. I think working with some of them, having our business community work with them, is one possibility, developing partnerships at that level.

And certainly NGOs. As I mentioned, they really are the most dynamic and I think creative force in China today. They are the ones who are pushing for the types of change that will bring about that good governance.

So I think there are things that we can do to support them. Obviously, they cannot be overt, because the United States Government supporting Chinese NGO activity will not go over very well. But for example, there are many, many NGOs worldwide—World Wildlife Fund is certainly one of them, but NRDC, Environmental Defense Fund, and many others—who have been working in China, working with the Chinese for long periods of time. To the extent that the U.S. Government can support their activities and their partnerships with China, I think that is also really important, because supporting the people that are actually effecting the change from the bottom up I think is quite worthwhile.

Senator CARDIN. So we have talked about China, we have talked about Myanmar, we have talked about the countries along the

Mekong. Are there other countries in Asia that we should be particularly concerned about on the environmental front or on preserving diversity, water security, et cetera, that you would want the subcommittee to pay attention to?

Mr. ROBERTS. Obviously, Indonesia is at the top of the list. When we map all the priorities of the world in terms of fisheries and forests and rivers and the rest, Indonesia always comes out No. 1. It is where everything piles up. It is the world's richest forest pound for pound in terms of diversity of life per square kilometer. I do not know if you have seen the map of coral reef diversity in the world. It looks like a bull's eye. The center of the bull's eye is Indonesia.

Yet it is a very complicated country because it is such a vast archipelago with so many different dynamics there. Yet it is also a country where the President has made the Coral Triangle Initiative one of his signature accomplishments. But it is where everything comes together in terms of food production, in terms of timber and pulp production, in places like Borneo and Sumatra, and where I think there is an opportunity. We talked about commodities and getting those right and we talked about fisheries management and getting that right, that Indonesia is more than any other a place where, if we can nail those kinds of models in a country that has real governance issues, that it will have an enormous impact just in that country and also beyond.

So it has been already one of the priority programs for the U.S. Government. But just continuing that kind of work with the countries around Indonesia is enormously important.

I do not know if you have any other suggestions.

Dr. ECONOMY. No, I focus on China. It keeps me busy, let me tell you.

Senator CARDIN. You want to get back to China.

Dr. ECONOMY. No, no. All I was going to say is actually, as I was just thinking about it, I am glad to hear that you are thinking about working with Japan and South Korea and the sort of North-east Asia regional sort of forum. I know that had been floated even during the Clinton administration, and China was not interested at that point in time. So this I think represents a real step forward if in fact they are interested. This may be sort of a six-party talks comes to the environment.

Senator CARDIN. That is exactly right. The motivating factor for this is South Korea. They are the ones pushing it hard. China was interested because they thought it helped North Korea to be in this type of a regional discussion. Japan thought it was interesting that they could be in a regional organization with Korea and perhaps do something about their relationship. It is a complicated group. When you are in each country they have different priorities, but I think they share a lot in common.

The good news about the Helsinki framework is that it is not that intimidating because it is a consensus group. So you do not have to worry about treaty responsibilities. You just sit down and talk. It is proven effective.

The other advantage and what we are looking at is whether it could be put under the umbrella of OSCE, so they do not have to negotiate the commitments. The commitments are universal. They have already been agreed to under Helsinki.

So there is interest in that and we are pursuing it. We expect to see whether that can be done, either formally or informally. Some of the countries already have affiliate memberships within OSCE.

Mr. ROBERTS. Mr. Chairman, one thing I wanted to just touch on, and it is building off of your comments, is the whole notion of regional influence. On Myanmar, Myanmar is going to chair ASEAN in the coming year. I think if we can smartly work with Myanmar on a set of agenda items in the context of ASEAN that build off the kind of green economy principles that we ought to be building with Myanmar and the kind of smart choices that I talked about in Myanmar, that we could engage Myanmar also in their leadership in ASEAN in advancing those kind of principles throughout that region and use their influence.

I never thought I would be talking about Myanmar's influence in the rest of Southeast Asia, but there you have it, because everybody is watching, they have the platform, and by giving the right technical assistance on mapping their biodiversity and giving them the right guidelines on technical choices and using ASEAN as a platform, is I think, a golden opportunity for us to engage with that country and have ripple effects far beyond.

Senator CARDIN. It is an opportunity. When nations want to take on leadership responsibility within regional organizations, they need to be a model in using that to advance the goals of those regional organizations. You are absolutely correct, we do have higher expectations if they want to step into leadership positions.

I found this with Vietnam and now perhaps with Myanmar—that they really do want to become more of a legitimate international player. And if that is the case, then they need to change and they need to show leadership. We are seeing that they are taking some steps to do that. Again, the jury is out. I am not trying to oversell this. But we have seen some signs of progress. Certainly I could get into human rights, which is one of my favorite subjects, and there are certain deficiencies there that are pretty fundamental that have to be dealt with.

Mr. ROBERTS. When we look around in the world, we have all kinds of science that says these parts of the world are important and that prioritize different parts of the world, and then there are these unexpected openings when the biggest things happen. One of the proudest things we have ever done was when Namibia attained independence and the U.S. Government through USAID helped build one of the most powerful community-based programs for conservation there—another country that almost has zero poaching.

There are these moments when countries like Myanmar or Namibia or Nepal change governments and things happen, where shame on us if we do not provide the right technical assistance at the right moment and do so over an extended period of time, because success blossoms in the most unexpected places. I see that part of the world, Southeast Asia, including Myanmar, as one of the biggest opportunities we have in our work.

Senator CARDIN. Agreed.

Well, let me thank both of you for your contributions to this hearing. I think this has been extremely helpful to us. The President's initiative on the rebalance gives the United States much

greater visibility in the Asia-Pacific region, and that allows us to move forward on agenda items. We think very much that sustainability, the environmental front, the management of food and water resources is a critical objective for the United States in Asia. So we will continue to promote these issues, and you have helped us develop a workable strategy.

Thank you all very much, and with that the subcommittee will stand adjourned.

[Whereupon, at 2:22 p.m., the hearing was adjourned.]

