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**“U.S. Security Implications of International Energy and Climate Policies and Issues”**

Chairman Markey, Ranking Member Barrasso, and Members of the Subcommittee, on behalf of the U.S. Agency for International Development (USAID), I would like to thank you for holding today's hearing and giving me the opportunity to testify.

President Obama set forth a new vision of a results-driven USAID that would lead the world in development. We have risen to this challenge, pioneering a new model of development that emphasizes partnerships, innovation, and results. We are guided in these efforts by our new mission statement: we partner to end extreme poverty and promote resilient democratic societies while advancing our security and prosperity.

In today's global economy, America's well-being and economic growth are closely linked to economic growth in the developing world. Growth in developing countries helps to create new and better markets for U.S. goods and services. Equally important, stable, secure and resilient nations are less vulnerable to crises, illegal activity, and international crime, which directly impacts U.S. national security.

Two factors that are critical to spurring and maintaining economic growth and stability in developing countries are access to affordable, clean energy and the existence of social and institutional capacity to adapt to, mitigate and recover from shocks and stresses such as economic downturns and the adverse impacts of climate change. In particular, working with developing countries to help them deal with destabilizing climate change consequences, including water supply shortages, coastal flooding and droughts, is critical. Such work also protects our current and future development investments.

Today, I will highlight how the lack of clean energy access and the inability to address climate change risks can have a destabilizing effect on a country's economy, security, and the well-being of its citizens. I will describe USAID's efforts to address these challenges and discuss how our work on adaptation to climate change, water security, food security, and sustainable landscapes impacts security. Much of this work is embodied in USAID's Climate Change and Development Strategy, which seeks to help developing countries speed their transition to climate resilient, low emission, sustainable economic growth. Stability and well-being overseas often directly helps ensure U.S. national security.

**Energy Access**

Today, about 1.6 billion people, most of them living in the developing world, lack access to a reliable source of electricity. The economic consequences of this are enormous. The availability and reliability of affordable energy – especially electricity – is critical to growing businesses,

both large and small, creating jobs, developing markets, and providing a range of social services such as health care, education and public security.

This was clearly seen when the U.S. Government assessed constraints to economic growth in Africa two years ago. As a result, the Administration launched the Power Africa initiative to promote a private-sector solution to improved electricity services. This initiative has made considerable progress already, with nearly 2,800 megawatts (MW) of new generation projects financially closed, and another 5,000 MW in the planning stages.

Expanding reliable energy access requires getting regulatory structures right while protecting vulnerable populations. Distortionary policies like fossil fuel subsidies can reduce incentives for energy efficiency, hamper low and no carbon energy production, raise dependence on energy imports, and create unsustainable fiscal liabilities. One striking example is in Ukraine, where the U.S. Government is now working with Ukrainian Government to bring electric rates to a level that covers costs, protect the most vulnerable from the impact of gas and heating rate increases, strengthen payment discipline, improve energy efficiency in the heating sector, and increase transparency.

For many countries, renewable energy, such as solar, wind and hydropower, has begun to play an important role in meeting emerging energy needs. USAID is supporting these efforts through our development programs. Around the world, the cost of renewables is becoming competitive with hydrocarbon-based power generation, while also helping to mitigate the destabilizing effects of high-priced hydrocarbons. As the cost of renewable energy declines, many countries are scaling up renewables for a variety of reasons, including cost, domestic energy security and addressing climate change. We will work with the Department of State and other agencies to ensure relevant US renewable energy solutions contribute to these developments.

With USAID support a number of countries are scaling up renewables. For example, India is scaling up wind and solar energy generation. USAID's partnership with India in this area is focused on energy sector reform, energy access, and clean energy programming, and has helped India develop 30,000 MW of wind, solar and small hydro generation capacity with a goal of adding another 30,000 MW between 2012 and 2017. This will be almost 25 percent of India's total generation capacity in 2017. Renewables not only help India to increase power generation and weather the shock of volatile hydrocarbon prices, but also help reduce the country's greenhouse gas emissions.

South Africa is another example where affordable electricity plays a critical role in supporting economic growth and stability. South Africa has recently begun to scale up wind and solar generation through private investment. Between 2011 and 2013, South Africa's national power company, Eskom, signed purchase agreements for almost 3,600 MW of renewable energy generation. South Africa is addressing its electricity crisis by diversifying its energy mix, and USAID is supporting several programs that will help South Africa in this important effort with a new program that focuses on renewable energy development.

In Ethiopia, Power Africa is helping develop Corbett, a 1,000 MW geothermal plant in Ethiopia's Rift Valley. When complete, Corbett will be the largest geothermal project in East

Africa and the first privately owned energy project in Ethiopia, paving the way for other private sector investors looking at Ethiopia for opportunities. Corbett and the development of Ethiopia's rich geothermal resources will help the country diversify beyond hydro.

In the Philippines, USAID has been working successfully on scaling up renewable energy and energy sector reform. These two areas are closely inter-related as reformed energy systems are more capable of providing the funds and people needed to increase modern energy access and scale-up clean energy. USAID supported the Philippines by helping them to pass a biofuels law that allowed them to utilize coconut oils as a mix to their fuel supplies. More recently, USAID helped the government to put into place a National Renewable Energy Plan and establish feed in tariffs that are designed to be sustainable, which will help the government to achieve a significant scaling up of renewable energy in the coming decades.

For the Philippines, the development of renewable energy sources is increasingly important given the rising tensions in areas through which fuel supplies must flow. The southern island of Mindanao, one of the Philippines' fastest growing regions, historically plagued by insurgency and instability, is dependent on hydropower generated by a limited number of dams. Long-term climate forecasts suggest this region will experience decreased rainfall in the future if climate trends continue, thus reducing the availability of water to power the dams. Risks to hydropower supplies are a crucial energy security issue for the region. Diversification of energy supplies is therefore essential for prosperity in the region and USAID is working to help increase the role of renewables in the island's overall power supply.

Scaling up renewable energy in countries like the India, Philippines, and South Africa serves multiple objectives, supporting economic growth, and serving the U.S. interest in stability and sustainable growth, and mitigating the risks of climate change.

### **Climate Change**

Improving a country's resilience to adverse climate change impacts is essential to its economic growth, stability, and security. It also protects our development assistance investments. Focusing on building resilience also saves money: disaster planning efforts that reduce storm damages are cheaper than relief efforts and infrastructure reconstruction. The World Bank estimates indicate that every dollar used for disaster risk reduction has a seven dollar savings in disaster recovery costs.

I would like to discuss some of the destabilizing effects climate change can have in terms of creating national disasters, reducing agricultural productivity and causing food insecurity, and depleting water supplies and how USAID is addressing them, particularly through USAID's Climate Change and Development Strategy.

Floods, droughts, cyclones and extreme temperatures constitute 75 percent of natural disasters globally and affect more than 200 million people annually. These types of disasters are expected to intensify with climate change.

In Bangladesh, more than 20 percent of the country is flooded in a normal year, leading to lives lost and the destruction property. Shifting monsoon patterns are expected to increase discharge

of the rivers into Bangladesh, worsening flooding; this will be particularly problematic in combination with sea level rise. To improve the country's ability to mitigate the impact of flooding, USAID and NASA, through a joint effort called SERVIR, are helping Bangladesh adopt a new flood forecasting system. Under SERVIR, data gathered is enabling Bangladesh to provide an additional five days of warning about impending floods. Before this program, flood warnings were issued three days in advance, which does not provide adequate time for farmers and their families to prepare. USAID is also working with the U.S. Army Corps of Engineers to ensure that storm shelters are built well and appropriately to reduce loss of life.

In the Philippines, USAID worked to restore water services in the wake of Typhoon Haiyan and is now supporting local water utilities and the national government in undertaking long-term planning that can help to ensure reliable water supplies in the context of increasing climate stress. We are also working in partnership with local Philippine institutions on the sustainability of these projects.

In many of the world's poorest countries agriculture plays a substantial role in the nation's economy and employs a large portion of its workforce. Adverse climate impacts such as erratic weather patterns, drought, and flooding can reduce agricultural productivity and output, severely challenging traditional agricultural livelihoods and in extreme cases causing widespread food insecurity and contributing to famine, as seen in the large scale humanitarian emergencies in the Horn of Africa and Sahel in 2011 and 2012. Improving local-level resilience to the impacts of climate change can protect and enhance agricultural production for local, regional and global benefit, and mitigate the disruptive influence of climate-related shocks.

USAID has begun working to make our food security investments more resilient to the impacts of current weather variability and longer-term changes in climate. In Ethiopia, USAID is supporting an effort to increase household incomes and enhance resilience to climate change in the country's southern and eastern pastoralist regions, home to about 15 million people. The pastoralist population chiefly raises livestock in arid lowlands, which are susceptible to frequent, and often severe, droughts that put millions of people at increased risk of food scarcity. The range of activities supported includes: increasing climate change awareness and early warning of droughts, mapping rangelands, rehabilitating damaged grazing grounds, building water storage, improving animal health and nutrition, and increasing pastoralist access to finance. Programs help develop innovative approaches that link scientific and local knowledge by tailoring information to the needs of both pastoralist communities and government stakeholders to improve decision making and reduce risk.

USAID also supports partners that are developing and testing weather-index insurance. Index insurance is a tool that can help populations whose livelihoods depend on the weather—such as small farmers and pastoralist herders—to manage changing climate risks. In Ethiopia, Senegal, and the Dominican Republic, USAID is working with local insurance companies to help them build the expertise to design and market affordable, weather-based insurance that can reach rural households.

Climate change also impacts water availability, quality and access. Where there is weak institutional capacity to constructively adapt to changes in water variability or to respond to extreme events like droughts, conflict risks are heightened.

Improving and sustaining access to water in the face of more frequent and severe droughts is an important element of USAID's approach to building resilience in areas affected by fragility like the Sahel, where many depend on rain-fed agriculture and pasture for their livelihoods. USAID's programs in the Sahel work to increase access to water through repairing and improving water access points, building appropriate irrigation infrastructure, and introducing practices to improve water conservation and filtration. Our programs help communities to better manage their natural resources and reduce the potential for conflict over water and other scarce resources. These investments are intended to increase the ability of people, communities, and countries to better cope with shocks and stresses including climate variability and change, and ultimately, reduces the need for humanitarian interventions.

Another aspect of USAID's climate change efforts -- promoting sustainable landscapes -- also addresses drivers of instability and insecurity. Deforestation and degradation of forests, coastal wetlands and other landscapes, not only increase greenhouse gas emissions, but also deplete natural resource assets over the long-term and hurt economic activities that depend on healthy ecosystems. Deforestation can also be a destabilizing force in many forest-dependent communities, and illegal deforestation has been associated with corruption or criminal activity in a range of countries.

USAID is working to reduce greenhouse gas emissions by addressing the drivers of deforestation and land-use change: unsustainable forest clearing for agriculture, illegal logging, poor governance of land and forests, and a failure to ensure that local communities benefit economically from sustainable forest and land management. For example, in Colombia, USAID is working to improve the national government's management of biodiversity-rich forests, helping to ensure that Colombia's natural resources will not be used for illicit purposes. Another example of USAID's work in this area is the Tropical Forest Alliance 2020, a public-private partnership with a network of more than 400 companies. The Tropical Forest Alliance's goal is to reduce tropical deforestation associated with key global commodities, such as palm oil, soy, beef, and paper and pulp. Also, the Coral Triangle Initiative with USAID support is working to conserve imperiled coral reef ecosystems.

### **Concluding Remarks**

We see a clear set of linkages between USAID's efforts to improve energy access and address the impacts of climate change and regional security, which in turn benefits our national security. Heavy dependence on imported energy is often a major economic challenge due to fluctuating prices and pressures on foreign exchange reserves. Many countries – especially those with limited domestic hydrocarbon resources – are finding that scaling up renewables is a viable option, particularly as the costs of wind and solar decline. And reducing reliance of vulnerable economies to energy supplies from volatile regions has multiple development, diplomatic and security benefits for the United States.

USAID's work in our climate programs is about smarter development – investments that avoid future costs and crises, use modern technology and innovations to leapfrog development stages, and leverage local actors and the private sector to help scale our investments and ensure sustainability. Preventing or mitigating tomorrow's disasters – whether famine, drought, water shortages, or damage from severe weather events – enhances regional security, reduces hits to economic growth, and benefits the United States.

Thank you for the opportunity to testify this afternoon, and I look forward to your questions.