



**Testimony of  
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**Before the  
Senate Foreign Relations Committee  
Subcommittee on International Development and Foreign Assistance,  
Economic Affairs, and International Environmental Protection**

**October 15, 2009**

Good morning Mr. Chairman, Senator Corker and Members of Subcommittee. I am David Waskow, the Climate Change Program Director at Oxfam America.

Oxfam America is an international development and humanitarian organization that works with communities and partner organizations in more than 120 countries to create lasting solutions to poverty, hunger, and injustice.

We have come to see climate change as one of the greatest challenges to our efforts in the 21<sup>st</sup> century to promote development and reduce global poverty. In our operations spanning Africa, Latin America, and East Asia, our staff and partners are already responding to the serious impacts of climate change, from increasingly severe weather events to water scarcity. Moreover, as the science indicates, poor and vulnerable communities around the world will increasingly bear the brunt of the consequences of global warming, threatening the lives of millions of people and undermining global stability and security.

**As you know, climate change is a global problem that requires global solutions and cooperation. This is true not only to reduce greenhouse gas emissions, but also to combat climate change impacts already underway. In order for the United States to lead in addressing the devastating effects of climate change on the world's poor, as well as successfully negotiate a comprehensive global climate agreement, we must provide meaningful resources to support the efforts of vulnerable developing countries to adapt and build resilience to climate impacts.**

**Millions of lives and, in some cases, the literal survival of vulnerable nations depends on a significant and sustained financial commitment from the United States**

**and other developed countries. Moreover, we cannot afford to put our security at risk as a result of inattention to the destabilizing impacts of climate change in impoverished countries around the world. The necessity of such action is complemented by the economic benefits it can provide, both for developing countries themselves and for businesses and workers in the United States who can partner with communities internationally to deliver adaptation products and services.**

**Congress has a unique opportunity to invest in adaptation solutions today that will pay off both immediately and in the future, and we urge you to help ensure that at least 3% of the resources in comprehensive climate and energy legislation are devoted to adaptation efforts in vulnerable developing countries. While these resources alone would not meet the substantial need for adaptation funding according to recent estimates, and must be augmented through other sources, providing this support in a U.S. climate bill is an important step to addressing critical needs in developing countries.**

**As President Obama recently stated before the United Nations: “For these are the nations that are already living with the unfolding effects of a warming planet -- famine and drought; disappearing coastal villages and the conflict that arises from scarce resources. Their future is no longer a choice between a growing economy and a cleaner planet, because their survival depends on both. It will do little good to alleviate poverty if you can no longer harvest your crops or find drinkable water. That is why we have a responsibility to provide the financial and technical assistance needed to help these nations adapt to the impacts of climate change and pursue low-carbon development.”<sup>1</sup>**

The reality is dire for the world’s poor who stand on the front lines of the global climate crisis that they are least responsible for causing. People living in developing countries are 20 times more likely to be affected by climate-related disasters – such as floods, droughts, and hurricanes – compared to those living in the industrialized world. In the 1990s alone, nearly two billion people in developing countries were affected by climate-related disasters.<sup>2</sup>

The estimates of climate change’s contribution to worsening conditions are disturbing. Weather extremes, food and water scarcity, and climate-related public health threats are projected to displace between 150 million and one billion people as climate change unfolds.<sup>3</sup> Our already strained capacity to respond to natural disasters and health crises

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<sup>1</sup> Speech to United Nations General Assembly by President Barak Obama, as released by the White House, September 22, 2009.

<sup>2</sup> Jonathan Pershing (World Resources Institute): testimony to the House of Representatives Subcommittee on Energy and Air Quality, Committee on Energy and Commerce; Hearing on Climate Change, International Issues, and Engaging Developing Countries; March 27, 2007.

<sup>3</sup> Sir Nicholas Stern, “Stern Review on the Economics of Climate Change,” (Cambridge, UK: Cambridge University Press, 2007) <[www.hm-treasury.gov.uk/independent\\_reviews/stern\\_review\\_economics\\_climate\\_change/stern\\_review\\_report.cfm](http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm)>

around the world is being stretched even further by the increasing harm caused by climate change impacts. Developing countries' struggle to maintain food security is made even more acute in the face of declining agricultural productivity and the loss of crops to weather-related disasters. The very lifeline of the world's poorest countries, where communities depend on agriculture for their very existence, is being frayed.

Moreover, the consequences of climate change reach significantly beyond these direct impacts. Global stability and security will be undermined by increasing migration and refugee crises, by conflicts over ever-scarcer natural resources, and by economic and political destabilization as poverty and food insecurity grow.

Reducing these threats will require action today so that vulnerable countries are able to adapt to and build resilience to climate impacts. For the long-term, the most important preventive action we can take is a dramatic, immediate reduction in the greenhouse gas emissions that cause climate change. Indeed, adaptation needs will be far greater in the future if we do not take concerted action now to limit those emissions. Yet it is also increasingly clear that the consequences of climate change are already being felt, and that those consequences are often experienced first and worst by vulnerable communities in poor countries. As the Stern Review has noted, even if emissions were to be eliminated today, we would still face at least two decades of increasing global temperatures.<sup>4</sup>

Taking international action on adaptation is made all the more urgent because of the increasingly serious impacts from climate change we are already seeing today. Earlier this year, the International Scientific Congress on Climate Change warned that global warming is outpacing even recent scientific projections. "Recent observations confirm that, given high rates of observed emissions, the worst-case IPCC [Intergovernmental Panel on Climate Change] scenario trajectories (or even worse) are being realized.<sup>5</sup> For many key parameters, the climate system is already moving beyond the patterns of natural variability within which our society and economy have developed and thrived."

To cope with these consequences, the World Bank estimated in September 2009 that developing countries would require \$75-100 billion annually during the period 2010-2050.<sup>6</sup>

**In response to this reality, adaptation has come to the fore in international climate change negotiations. Making investments in international adaptation action in developing countries will be essential to achieving a global agreement that puts the world on the path to a future that is resilient to climate change.**

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and Christian Aid, "Human Tide: The Real Migration Crisis," May 2007, <[www.christianaid.org.uk/stoppoverty/climatechange/resources/human\\_tide.aspx](http://www.christianaid.org.uk/stoppoverty/climatechange/resources/human_tide.aspx)>.

<sup>4</sup> Nicholas Stern, "The economics of climate change: The Stern review" (Cambridge, UK: Cambridge University Press, 2007).

<sup>5</sup> The International Scientific Congress on Climate Change, "Key Messages from the Congress," March 12, 2009, Copenhagen. [http://climatecongress.ku.dk/newsroom/congress\\_key\\_messages/](http://climatecongress.ku.dk/newsroom/congress_key_messages/)

<sup>6</sup> World Bank, "Economics of Adaptation to Climate Change Study," September 2009.

**For many countries – from small island states to least developed countries such as Bangladesh and many African countries to countries like Peru suffering the consequences of glacial melt – adaptation is not a peripheral issue in the negotiations for a post-2012 climate agreement. Indeed, for well over 100 countries – a vast majority of the countries that participate in the negotiations – adaptation to climate consequences is a central element that must be addressed in a serious way and with substantial resources in any global deal. Major developing countries such as South Africa and India, who have substantial populations living on less than \$2 a day and who face growing water scarcity challenges, also see adaptation become a fundamental concern in the international process.**

Developing country leaders have been outspoken about the importance of adaptation. In a letter to this Committee dated July 30, 2009, the Bangladesh Ambassador to the United States stated, “such an agreement will be difficult to achieve without adequate resources for the least developed countries and other developing countries to adapt to climate change impacts. The efforts to address these impacts and to build resilience to climate change are vastly under-resourced.”

At the recent UN Summit on Climate Change, Mohamed Nasheed, President of the Republic of Maldives, a small island state, appealed to world leaders on September 22, 2009: “We stand here to tell you just how bad things are. We warn you that unless you act quickly and decisively, our homeland and others like it will disappear beneath the rising sea before the end of this century. We ask you what will become of us?”

The Bali Action Plan, which set out the parameters for the international negotiations leading to Copenhagen in December, established adaptation as one of the four pillars of any global deal. Adaptation is also a substantial area of negotiation in two of the other pillars, finance and technology. For many developing countries, the current attention to adaptation is a welcome recognition of its importance after years of neglect following commitments made in the UN Framework Convention on Climate Change, which was agreed in 1992 and to which the United States is party.

In the current negotiations, developing countries are seeking support for efforts already underway to adapt to and build resilience to the climate impacts they face. For example, more than 40 least developed countries have developed National Adaptation Programs of Actions (NAPAs) that identify urgent and immediate adaptation needs and actions. Many of these countries and others have now embarked on broader and longer-term adaptation planning processes. Developing countries often have the strategies in place to combat climate impacts; what is missing are the vitally needed resources to carry out their plans.

Climate adaptation is an urgent necessity for developing countries. Supporting vulnerable countries with the resources to undertake their adaptation efforts would be a wise investment by the United States. Taking action now will pay for itself many times over. Reducing risks from climate-related disasters, ensuring that water resources are available, and increasing food security will help reduce the costs faced in disaster response, food assistance, and security engagements. A recent report conducted by

McKinsey & Co. on the economics of adaptation showed that a wide range of adaptation strategies – from infrastructure improvements to technological measures and disaster relief programs– will provide much greater economic benefits than their initial costs.<sup>7</sup>

Building resilience in the face of climate change is also an economic opportunity that should be seized. Innovative adaptation solutions can be an integral part of a global transition toward a clean and climate-resilient economy. From improving water systems to developing more resilient agricultural practices, adaptation can provide substantial economic benefits. Already we are seeing a need for and development of new markets for technologies and services to help communities build resilience to climate change impacts, such as water pumps and filtration devices, irrigation equipment, early warning systems to forecast storms, flood, and drought, weather-indexed micro-insurance programs, and renewable energy systems to support adaptive strategies.

### **Impacts on vulnerable communities in developing countries**

While the United States is facing a significant challenge in addressing the consequences of climate change, the capacity of vulnerable communities in developing countries to cope with climate-related impacts is even more limited and is being stretched beyond capacity. Already, the number of people affected by climate-related disasters in developing countries has increased exponentially during the past four decades, as demonstrated in the graph below.

This trend is expected to continue. By 2015, on average more than 375 million people per year are likely to be affected by climate-related disasters. This is over 50 percent more than have been affected in an average year over the last decade.<sup>8</sup> Weather-related disasters around the world have more than doubled since the 1980s.<sup>9</sup> The estimates of climate change's contribution to worsening conditions are alarming. By 2020, up to 250 million people across Africa could face increasingly severe water shortages, according to the IPCC. By mid-century, more than a billion people will face water shortages and hunger, including 600 million in Africa alone.

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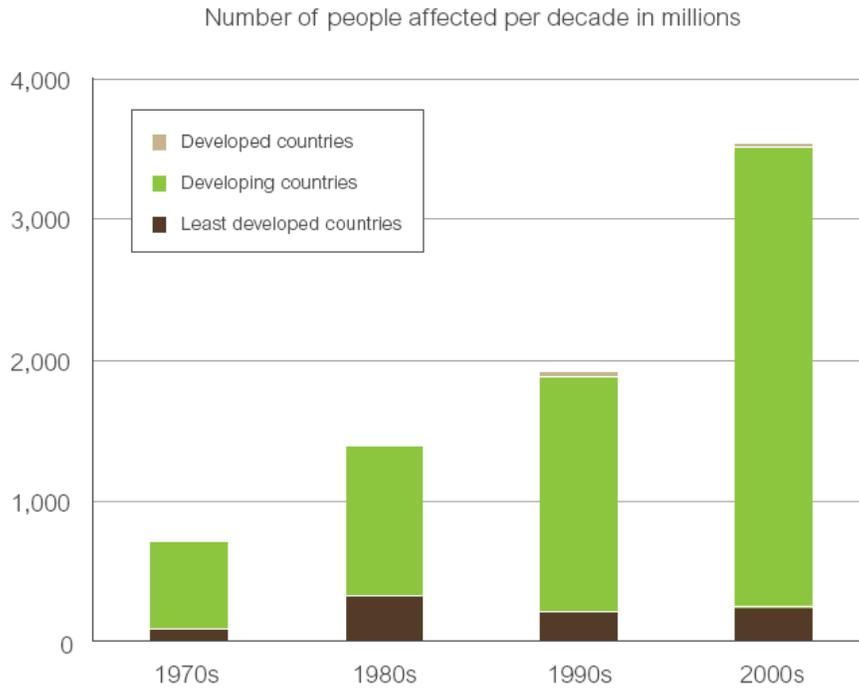
<sup>7</sup> Economics of Climate Change Working Group, "Shaping Climate-Resilient Development: A Framework for Decision-making," 2009.

<sup>8</sup> Oxfam International, "The Right to Survive," April 2009.

<<http://www.oxfam.org/sites/www.oxfam.org/files/right-to-survive-report.pdf>>.

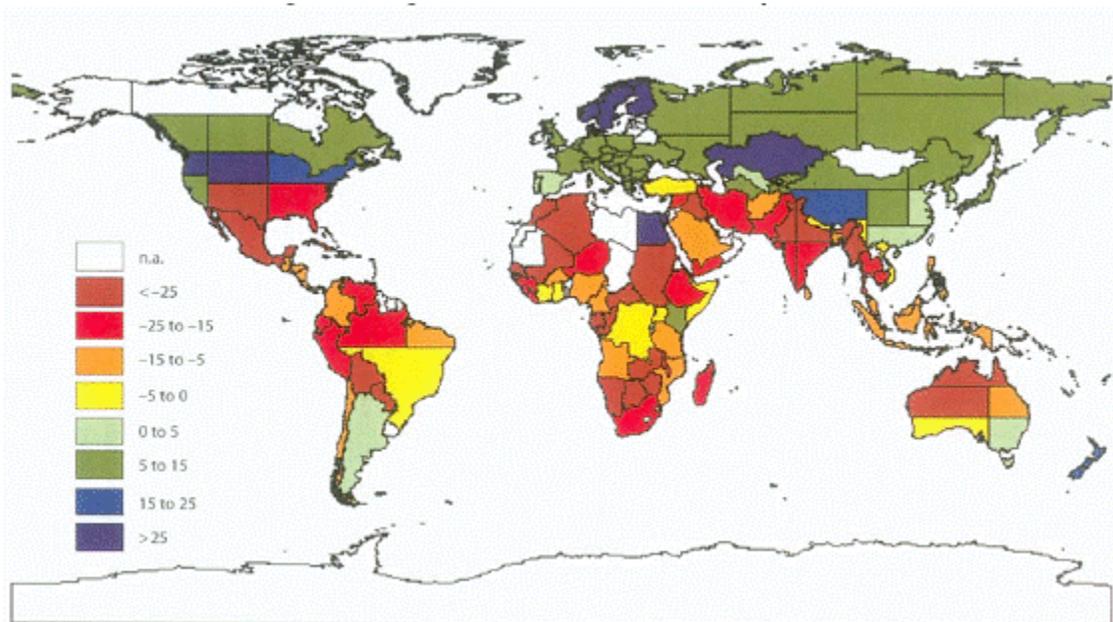
<sup>9</sup> Löw, Petra, "Weather-related Disasters Dominate," Worldwatch Institute, October 2, 2008.

### Number of people affected by climate-related disasters (in millions)



Source: Ian Noble, World Bank.

### Impact of climate change on agricultural productivity (without carbon fertilization)



Source: William Cline, *Global Warming and Agriculture: Impact Estimates by Country*, 2007

More than 75 percent of people in developing countries depend on agriculture as the main component of their livelihoods. According to IPCC estimates, some countries' yields from rain-fed crops could be halved by 2020 due to climate impacts. According to a recent study by the International Food Policy Research Institute (IFPRI), climate change will lead to a 20% increase in child malnutrition by 2050, and more than \$7 billion is needed annually in adaptation funding to prevent this growth in child hunger.<sup>10</sup>

If the moral and ethical arguments for dealing with the climate crisis are not yet evident, the economic imperative to reduce emissions is extremely clear. The Stern Review concluded that global warming may cost the world close to \$10 trillion by next century due to rising sea levels, famine, storms and other environmental harm. An Oxfam analysis of the costs of adapting to climate impacts in developing countries has found that the needs are at least \$50 billion annually, and potentially higher, when existing investments are protected and community-level adaptation needs are addressed.

As noted above, the World Bank released a study in September 2009 that estimates the cost of adaptation in developing countries to be \$75-100 million annually in the period 2010-2050. Similarly, the United Nations Development Program (UNDP) 2008 Human Development Report estimates that the adaptation needs of developing countries will total up to \$86 billion per year from 2015 onward. This estimate is based on the costs of integrating climate-resiliency into development activities (such as with irrigation systems and preventive health programs), strengthening infrastructure such as schools and roads, and adding to disaster preparedness and response capacity.

### **National Security, Global Stability and Building Climate-Resilience**

Our national interest will not be well-served by a failure to tackle the powerful ripple effects that climate change will cause in some of the most politically sensitive parts of the world. In a report from CNA, a number of retired US admirals and generals refer to climate change as a "threat multiplier," presenting significant national security challenges for the United States.<sup>11</sup>

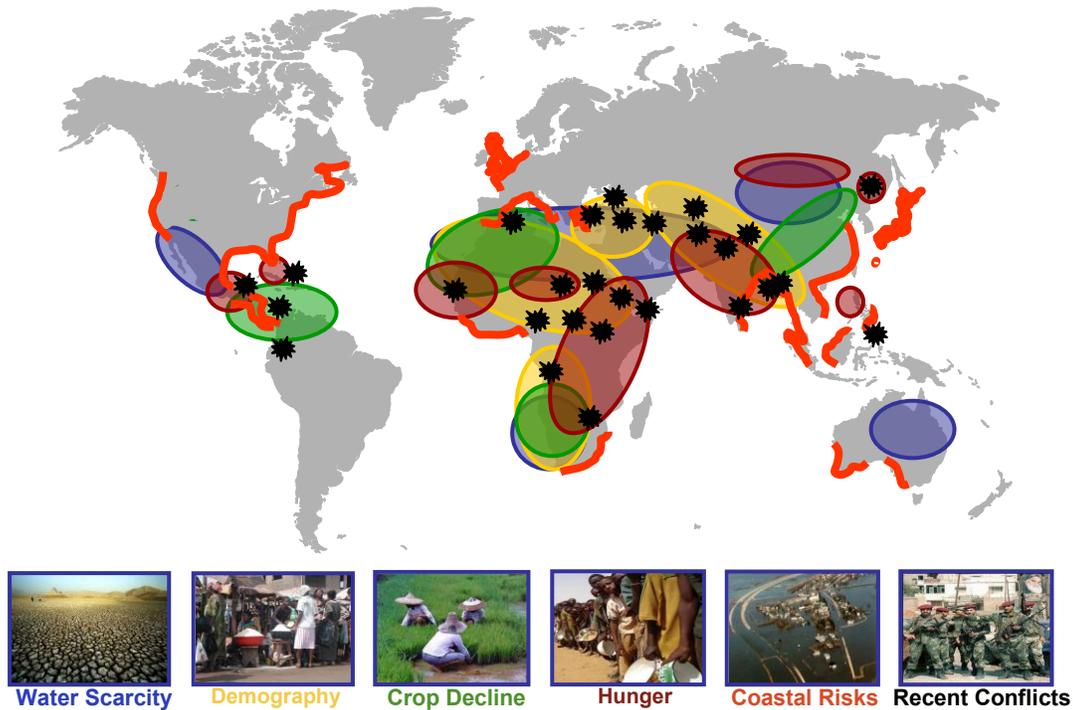
For instance, the increased scarcity of natural resources has contributed to conflicts in areas such as Darfur. The recent conflict there coincides with a 40 percent decline in precipitation in Sudan, which has been linked by scientists to global temperature change and changes in rainfall patterns tied to warming in the Indian Ocean. Such examples provide us with a glimpse at what is to come in the developing world if we do not build resilience to the consequences of climate change. One of the recommendations of the CNA report is for the US "to assist nations at risk to build the capacity and resiliency to better cope with the effects of climate change. Doing so now can help avert humanitarian disasters later."

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<sup>10</sup> International Food Policy Research Institute, "Climate Change: Impact on Agriculture and Costs of Adaptation," September 2009.

<sup>11</sup> The CNA Corporation, "National Security and the Threat of Climate Change," 2007.

## A Multiplier for Instability



Source: World Resources Institute

### **Adaptation as catalyst for new growth and resiliency**

Acting today to reduce disaster risks and improve livelihoods in agriculture and other sectors is essential in avoiding even greater costs later. For instance, providing improved irrigation and water retention systems will help reduce future food aid costs in times of scarcity or famine. Similarly, protecting infrastructure or putting in place natural sea buffers such as mangrove or cypress forests will help reduce future disaster assistance costs.

The financial benefits from taking preventive action have been demonstrated widely. According to an analysis by the U.S. Geological Survey and the World Bank, an investment of \$40 billion to reduce disaster risk is capable of preventing disaster losses of \$280 billion. A study conducted by the British international development agency finds that every US\$1 invested in pre-disaster risk management activities in developing countries can prevent US\$7 in losses.

In China, US\$3 billion spent on flood defenses in the four decades up to 2000 is estimated to have averted losses of US\$12 billion. Evidence from a mangrove-planting project designed to protect coastal populations from storm surges in Viet Nam estimated economic benefits that were 52 times higher than costs. In Brazil, a flood reconstruction

and prevention project designed to break the cycle of periodic flooding in 2005 has resulted in a return on investment of greater than 50 percent by reducing residential property damages.

Bangladesh provides a particularly compelling example of the benefits of prudent planning and risk reduction. In 1970, up to 500,000 people perished in the Bhola cyclone in Bangladesh, and in 1991 another 138,000 people were killed in the Chittagong cyclone. Bangladesh has since instituted a national cyclone preparedness program that includes shelters, early warning systems and community-based preparedness measures.

When Cyclone Sidr struck Bangladesh in 2007, a network of some 34,000 volunteers were mobilized to effectively communicate risks to millions of people – even where many had limited or no access to TV and radio – to encourage evacuation to a network of cyclone shelters. As a result, while 3,300 people perished, far more lives were saved compared to the earlier cyclones. By contrast, when Cyclone Nargis hit the Burma (Myanmar) delta region in May 2008, there was a broad failure by the government to alert residents and to provide protection. As a result, UN agencies report that more than 100,000 perished in the cyclone.

Working with vulnerable communities in building their resilience to the consequences of climate change can also provide a means to enable these same communities to become more economically, socially and politically resilient in the broadest sense. For instance, reliable access to essential services such as sanitation and clean water can help build the capacity of communities to respond to unpredictable climate events such as floods and drought but also can serve as a foundation for economic growth and development.

Often, building resilience means enhancing existing development approaches, such as improving agricultural techniques or water supply systems. At other times, however, the challenges will be new and different. For instance, some communities will have to adapt to rapidly melting mountain glaciers—creating excessive runoff and the potential for unprecedented floods now while leading to scarcer water supplies in future years once the glaciers are gone. These communities could benefit from the creation of reservoirs and water impoundments to capture and store water resources that will become increasingly scarce in the future. Alternatively, these communities may have to create flood warning systems to deal with higher water flows and may have to change agricultural practices and the crops they grow to deal with water abundance in the short term and scarcity sometime in the future.

In some cases, adaptation strategies can also provide important benefits in reducing or sequestering greenhouse gas emissions. For example, agricultural practices involving agroforestry; increasing soil carbon from reduced tillage, mulching, or other practices; and efficient water usage can provide both adaptation and emissions reduction benefits.

Vulnerable communities are engaging in a variety of resilience-building approaches that promote economic development and poverty and improve climate-change resilience. Some examples include:

- In the Arequipa region of Peru, small farmers are installing a new system of gravity-fed irrigation to ensure that pastures are properly watered, an increasingly difficult task as water supplies decrease due to the overly rapid melting of glacial water sources. Other initiatives in the region include installing radio networks to ensure that remote communities are informed of any severe weather patterns.
- In Karnataka, India, the local government has initiated an innovative watershed development project. Small dams now catch the water from monsoon rains before the water disappears from the watershed, and the water is slowly absorbed into the ground to replenish the local aquifer and refill dry wells.
- In Ethiopia, farmers are being trained in practices such as appropriate crop spacing and crop rotation, techniques which also increase farm productivity. Farmers have also learned skills and strategies such as water harvesting and carefully selecting seeds based on their capacity to cope with climate variability. In addition, distribution of energy-saving stoves has decreased unsustainable use of firewood and the workload of the women and children who gather it.
- In Cambodia, small-scale farmers are implementing an agricultural technique called System of Rice Intensification (SRI). SRI has been developed to revive traditional agricultural techniques for rice farming that may prove less water intensive and more productive than other agricultural approaches.

A recent cost-benefit analysis conducted by McKinsey & Co. for the Economics of Climate Adaptation Working Group of the World Bank found that the development of new areas of cash crop production in countries like Mali could avert the country's expected economic loss from climate change and even generate additional revenue. The analysis also found that climate resilience measures can have a positive impact on health. In Guyana, putting in place basic flood-proofing measures and emergency response capabilities would also significantly reduce mortality.<sup>12</sup>

Meanwhile, for many companies, there are critical overlaps between climate impacts that will affect their supply chains and impacts on local communities. For example, water scarcity can affect the production of cotton for the apparel industry so that finding ways to protect shared water resources can be enormously beneficial both to those companies and to communities.

Responding to climate change impacts affecting poor communities may also present new business opportunities and spur economic development in some of the poorest regions of

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<sup>12</sup> Economics of Climate Change Working Group. "Shaping Climate-Resilient Development: A Framework for Decision-making," 2009.

the world. Recent interest in “climate-risk” insurance products by the insurance industry offers one indication that global financial institutions understand the costs and benefits of both emissions reduction and building climate resilience aimed at hedging future climate risks.

In Ethiopia, where 85 percent of the population is dependent on rain-fed agriculture, Oxfam is working with the insurance company Swiss Re and small-scale farmers to pilot a weather-indexed micro-insurance project.

Meanwhile, cutting-edge companies with major U.S. operations are already developing and deploying innovative technologies and services that help communities adapt to droughts, floods, storms, and other climate-change impacts. Climate resilience solutions take many forms. For example, Pentair, a Minnesota-based company with nearly \$3.5 billion in annual revenue, manufactures technologies for the entire water cycle – from pumps to filters. The company has installed and maintained filtration systems that provide clean drinking water to rural communities in India and Honduras. General Electric is supplying solar energy modules and water filtration technology to a new initiative to increase the availability of drinking water in rural areas of India and other developing countries in the East Asia region and Africa.

The development of new, clean energy technologies to support climate adaptation and resilience in developing countries is another arena for business opportunities. Energy poverty, or the absence of access to reliable energy services, affects approximately one-third of the world’s population, with 80 percent of those in South Asia and Sub-Saharan Africa. Building a renewable energy future in vulnerable countries can provide the developing world with the infrastructure needed for some critical adaptation strategies such as water pumps, while also helping developing nations grow along a low-carbon pathway. For example, General Electric’s Homespring system harnesses solar energy to power water apparatuses in off-the-grid communities in Africa and Asia.

The map in the appendix represents a sampling of companies operating in the US that develop products and provide services that build climate preparedness. These and other firms stand to benefit from an increase in adaptation market opportunities that spur innovation and create jobs. Public financing for climate change adaptation will increase demand opportunities for well-positioned companies.

### **Achieving a Successful Outcome in International Negotiations and U.S. Support for International Adaptation**

Climate change requires a global solution, including investments in international adaptation efforts around the world. Achieving a successful outcome in the international negotiations will depend on the readiness of the United States and other developed countries to support the efforts of developing countries to adapt and build resilience in the face of the climate change challenge.

The most important element for success is substantial resources for adaptation in vulnerable developing countries. These resources must be new and additional to existing

official development assistance (ODA) commitments. Climate change is a new burden on developing countries; the resources to address this additional obstacle to development should not come from aid commitments intended to address underlying, already existing development challenges. Health and education development programs, for example, should not be diminished in order to pay for addressing climate challenges such as water scarcity or increasingly severe storms and floods.

The amount of funding currently being generated and distributed to support adaptation in vulnerable countries is woefully inadequate when compared to the current estimates of need. According to the World Bank, resources for multilateral adaptation finance initiatives included \$172 million total for the Least Developed Countries Fund (as of October 2008); \$600 million total in pledges for the World Bank's Climate Investment Fund/Pilot Program on Climate Resilience (due to sunset when a post-2012 climate agreement is in place); an estimated \$300-600 million/year for the Kyoto Protocol Adaptation Fund, to which the United States is not a party; and \$50 million total for a special Global Environment Facility adaptation fund.<sup>13</sup>

While adaptation funding should be new and additional to existing ODA commitments, adaptation strategies and programs should be aligned with national development strategies in developing countries and a U.S. development strategy. If adaptation is not carried out in alignment with broader development approaches, it will not provide the greatest possible benefit for development. Indeed, in many cases, adaptation practices must expand upon existing development approaches.

In addition to providing adequate resources, an international climate agreement, as well as Congressional legislation, should result in an appropriate structure and appropriate delivery mechanisms for international adaptation assistance. The following are key elements to address:

- Adaptation efforts in developing countries should be community-based and ensure the full engagement of local communities in the development and implementation of adaptation strategies and activities. Such approaches have the greatest likelihood of success on the ground.
- Adaptation resources should be focused on the most vulnerable communities and populations in developing countries. Gender should be a key consideration in deciding where to focus resources; women are often the most vulnerable to climate impacts because of their role in providing food and water for their households.
- Bilateral adaptation assistance should include multi-year funding for developing countries, based on agreements regarding national objectives for enhancing climate resilience.

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<sup>13</sup> World Bank, "Economics of Adaptation to Climate Change Study," September 2009.

- Multilateral adaptation funding should be overseen and governed in a way that ensures fair representation for vulnerable developing countries. To best achieve this, funding should be governed through a funding body under the oversight of the parties to the UN Framework Convention on Climate Change (UNFCCC), the principal international venue for addressing climate adaptation.

## **Conclusion**

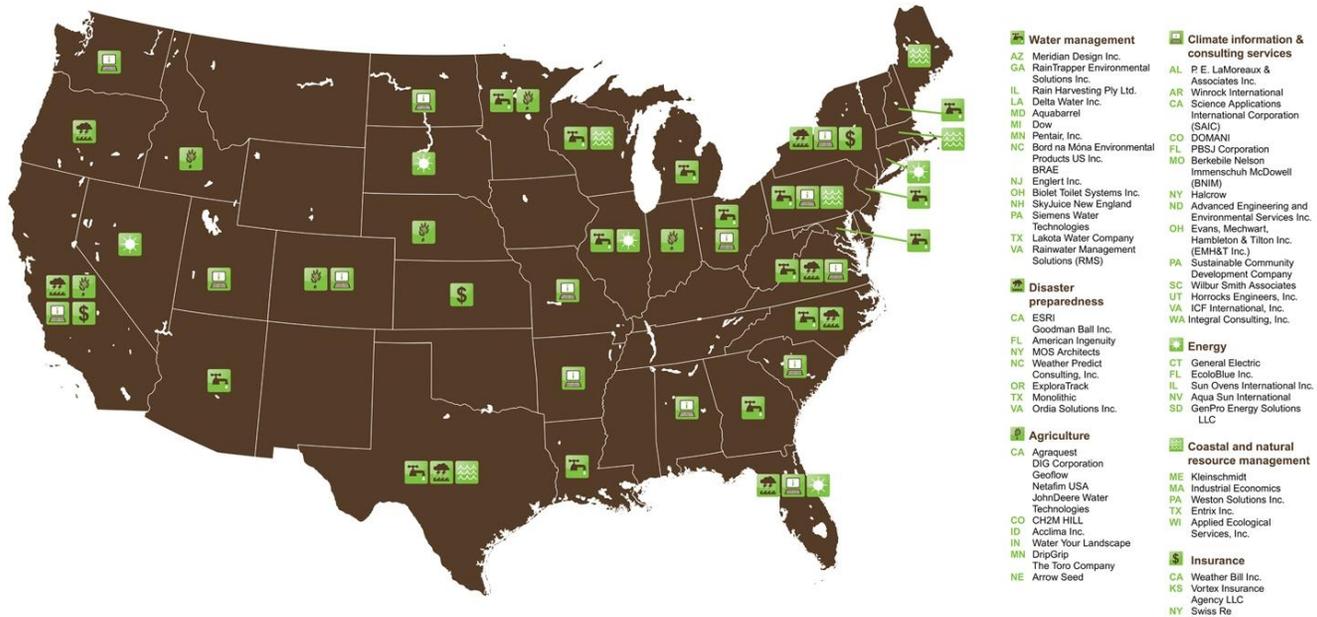
We appreciate this Subcommittee's leadership on climate change and the ways in which we can deal with its consequences. It is not too late to demonstrate our resolve and to lead the world in addressing one of the greatest challenges of this century. Thank you for the opportunity to appear before you today.

# APPENDIX



## The adaptation marketplace

The map below represents a sampling of companies operating in the US that develop products and provide services that build climate preparedness. These and other firms stand to benefit from an increase in adaptation market opportunities that spur innovation and create jobs. Public financing for climate change adaptation will increase demand opportunities for well-positioned companies.



Source: Oxfam America