

TESTIMONY OF  
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Chairman Faleomavaega, Ranking Member Manzullo, distinguished members of the Subcommittee, I appreciate the opportunity to testify today on the subject of From L'Aquila to Copenhagen: Climate Change and Vulnerable Societies. I hope this hearing serves as another signpost signaling America's critical role in supporting climate change adaptation in the world's most vulnerable communities.

**Climate Crisis, Credit Crisis**

In the midst of a global economic downturn, the world's climate negotiators will descend on Copenhagen for the 15<sup>th</sup> Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) with the aim of crafting a post-2012 climate regime.

Since the Intergovernmental Panel on Climate Change's Fourth Assessment Report was released in 2007, a growing number of scientists believe that climate change forecasts may have been too conservative and that the rate of climate change may be closer to the worst-case scenarios. While some of the adverse effects of climate change will unfold over decades, time nonetheless, is of the essence. Carbon emitted in the next decade will stay in the atmosphere for well over hundred years, and power plants

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built in the next decade will determine the carbon intensity of our energy supply for years to come.

As governments struggle to revive their economies, policymakers have taken important steps towards green growth by allocating parts of their fiscal stimulus to key climate change investment themes—including here in the U.S. On the other hand, fear of unemployment and slower growth prospects may undermine the political resolve to tackle climate change in an ambitious way. On balance it is not clear how strong that resolve is—the events ahead will test it in the coming months.

Given the tight timeframe for action, it may be too much to hope for a comprehensive global deal that settles all of the major sticking points. Success will have to mean, however, that decisive progress is made with a clear roadmap for what is to follow, and that contrary to the Kyoto experience, all major players be part of that roadmap.

### **Why Act Now?**

The scientific evidence that our climate is changing is now overwhelming. The link between greenhouse gas emissions and human activity is also well established. However, there still remains a huge amount of uncertainty regarding the processes that mediate between greenhouse gas (GHG) emissions, their concentration in the atmosphere, the effects of different concentrations on climate, and what changes in climate will mean for biodiversity, agriculture, sea levels, and the many other 'climate dependent' characteristics of our planet. There is also uncertainty as to how fast all of these processes will unfold; in some cases it seems the phenomena are happening faster than earlier IPCC reports had predicted.

The nature of this uncertainty is such that the decision to address climate change in the U.S. and the other advanced economies should be viewed as being more about preventing catastrophic risk than attempting to optimize along a “known” growth path. In other words, though we do not know with certainty what will happen and when, we do know that catastrophic outcomes are *possible*. For example, the melting of the Greenland and West Antarctic ice sheets would result in large sea level rises changing the world’s physical and human geography. Changes in the thermohaline circulations (the ‘conveyor belt’ of ocean heat that determines much of the earth’s climate) affecting the Gulf Stream would lead to dramatic changes in global weather patterns. Climate tipping points could be reached, unleashing self-reinforcing multiplier feedback effects—e.g., saturated carbon sinks, releases of methane from arctic permafrost thawing—that could dramatically amplify temperature increases. Given that catastrophic events are possible in the long run and that the damage they can inflict could be devastating for the whole of humanity, acting to abate greenhouse gases should be viewed as insuring against uncertain but potentially catastrophic outcomes. Again, what we do today, will have effects for decades and even centuries.

A second, *conceptually distinct*, argument for urgent and ambitious action is grounded in the fact that the world’s poorest people—those who are least able to cope—are going to suffer the most and soonest from climate change’s adverse effects. Climate stability is in one sense a perfect example of a global public good, because a given quantity of heat trapping gas emitted in Chicago, Beijing or London, or for that matter anywhere in the world, will have the same effect on atmospheric concentrations. The impact, however, these concentrations have on climate experienced in any given location as well as the effect of changes in climate on human well-being will be quite different from one region to another.

For example, according to Yale University economist Robert Mendelsohn, usually cautious in his assessments of global warming, climate-driven changes in global agricultural output will acutely affect poor households in the developing world. Reductions will be especially severe in rain-fed crop farming (as distinct from irrigated farming and livestock management); for example, Chinese farmers on rain-fed farms will likely lose annual net revenue of \$95 per hectare per degree Celsius, while their African counterparts will lose \$28. Meanwhile, William Cline of the Peterson Institute for International Economics predicts that developing countries will suffer an average 10-25 percent decline in agricultural productivity under business-as-usual emissions (discounting carbon fertilization). The poor will also suffer from heightened water stress and scarcity. Changed runoff patterns and continued glacial melting will have significant implications on water availability, interacting with already severe ecological pressures on water systems. According to the IPCC, Central Asia, Northern China, and the northern part of South Asia face serious vulnerabilities associated with the retreat of glaciers whose river systems provide water and sustain food supplies for over two billion people.

Climate change projections also point to intensified tropical storms, more frequent and widespread floods, and drought, where disaster risks are skewed towards developing countries: while 1 in 1,500 people were affected annually by climate disasters in OECD countries between 2000 and 2004, in developing countries as many as 1 in 79 people were affected. Monsoon floods and storms in South Asia during the 2007 season displaced over 14 million people in India and 7 million in Bangladesh. Globally, the one billion people who live in urban slums, on fragile hillsides, or flood-prone river banks are among the most vulnerable to such extreme weather events.

Climate change is also likely to adversely affect the health status of millions of people with low adaptive capacity. An increased prevalence of malnutrition is likely while changing pathogens and vector-borne diseases will extend the reach of malaria and dengue fever.

While the richer parts of the world do not face such negative effects with the same intensity and within the same timeframe, they do potentially face the danger of longer-term catastrophic outcomes. Moreover, the social and political instability that climate change could cause in the poorer parts of the world could have serious consequences for overall peace and stability the world over.

There are, therefore, two fundamental strategic reasons to address climate change. In the near future the consequences of climate change will be felt most acutely by the world's poorest people. In the longer term, the sustainability of development and well-being on our planet as a whole is at stake. On both counts, ambitious and urgent action is required.

### **Key Elements of a Global Deal for Vulnerable Countries**

At the COP14, agreeing "in extremis" to what is known as the "Bali Roadmap" or the "Bali Action Plan," parties to the UNFCCC committed themselves to launching negotiations on strengthened action against climate change. The hope has been that this process would culminate in an ambitious negotiated outcome at the 2009 meeting in Copenhagen, which would enter into force before January 2013.

Yet to meet the political requirements of all participating countries—and the world’s most vulnerable countries in particular—a new global deal must include the following elements:

- **Improve and Broaden the Global Carbon Market**

The need to contain mitigation costs in developed countries and to help finance abatement strategies in the developing world has made carbon markets and offsets central to the post-2012 agreement. Because negotiators broadly agree that developing countries and developed countries have differentiated responsibilities in GHG mitigation, the Kyoto Protocol established hard caps on developed world emissions and allowed for the purchase of offsets in developing countries through the Clean Development Mechanism (CDM). These offsets have the advantage of both facilitating developed world abatement at lower cost in the developing world, while channeling resources to developing countries that build their GHG abatement capacities.

Yet reform is needed in the successor to the Kyoto Protocol’s CDM. Serious concerns have emerged about the current mechanism regarding whether or not credited reductions are additional, real, verifiable, and permanent. A reformed CDM could hold the key to linking regional carbon markets in the future, but much needs to change before that can happen.

Today, half the world’s GHG emissions come from developing nations. But in 2030, carbon dioxide emissions from non-OECD countries are projected in the business as usual scenarios to exceed those from OECD countries by 72 percent. According to the U.S. Energy Information Agency, most of the emissions growth in emerging markets is

likely to come from the consumption of fossil fuels (mainly coal, gas, and petroleum), which are feeding power generation and transportation needs.

Given the importance of having an effective mechanism to help manage abatement costs and create incentives for developing country engagement, changes to the CDM should be included in any new agreement.

- **Reduced Emissions from Deforestation and Forest Degradation in Developing Countries**

Since land-use and land-use-change (mainly through tropical deforestation) accounts for roughly 20 percent of global GHG emissions—a share larger than either the entire global transport or industrial sectors—forestry holds out a deceptively simple answer to abating emissions at lower cost and generating income for forest-dwelling communities and forest-rich developing countries. After all, halting deforestation should be easier than transforming the energy economy. Yet, it has proven remarkably difficult to alter forest conservation incentives.

Tropical forests—which hold most of the world’s forest carbon—are disappearing at an alarming rate of five percent per decade globally. Each year more than 13 million hectares of forest is lost.

With the World Bank estimating a \$5 per ton price for forest carbon, the cost of forest conservation would amount to only one eighth the cost of non-forestry carbon securities today in Europe. The fact that nonetheless today the forest carbon market is less than \$100 million, only 0.16 percent of the \$64 billion worldwide market for carbon-denominated assets points to tremendous efficiency loss. It also points to a missed

source of development funding—scaling up the forest carbon market could yield over \$30 billion annually for developing countries.

For 90 percent of those living on less than a dollar a day, forests can provide food, fuel, and a source of livelihood. Forests tend to soak up rainwater and release it slowly, thereby acting as a natural defense against flooding and drought. Forests can improve water quality by filtering harmful pollutants, pathogens, and sediment that can cause illness in people or livestock.

The international community is in the process of including the forest sector fully in the upcoming global climate agreement. It will be critical that incentives enable emission reductions that are monitored, reported and verified to international standards that are agreed upon by the Conference and that the negotiating capacity of developing countries (including indigenous communities) is increased prior to December.

- **Financing International Adaptation**

Assigning responsibility for meeting adaptation finance needs will likely remain a central obstacle in forging a post-2012 climate change agreement. Although climate change threatens all people, its adverse effects will be felt most acutely in the world's least developed countries and small island states—those countries that are least able to cope. Developed countries have agreed in principle to help developing nations adapt, but the scale of the assistance contemplated so far falls well short of poor country expectations. Developed countries also want to use adaptation finance as an instrument to encourage poorer countries to incorporate mitigation policies into their national development program, introducing conditionality into adaptation aid. The nature of such conditionality as well as the determination of how the burdens are shared, how



revenues are raised, and how funds are governed will likely play a central role in who participates in any post-Kyoto agreement. Success will depend on forging an international consensus and substantial political will on the answers to difficult and politically charged questions:

- *Levels of Funding:*

High degrees of uncertainty make predicting the cost of adaptation extremely difficult for it will depend greatly on the extent of global warming. Compounding difficulties is the near impossibility of disentangling adaptation needs from traditional development challenges. As such, estimates of the level of funding needed to assist developing countries manage the adverse effects of climate change vary widely: the UNDP estimates that additional adaptation finance needs will amount to \$86 billion annually by 2015, while the UNFCCC places the annual cost between \$28-67 billion by 2030.

The UNFCCC currently manages three adaptation funds: the Least Developed Country Fund, the Special Climate Change Fund, and the Adaptation Fund. The Global Environment Facility (GEF) has also started to fund small-scale adaptation projects through its core account. Yet as of June 2008, the \$320 million pledged cumulatively since the GEF received its mandate from the UNFCCC in 2001 to pilot adaptation action under the three financing mechanisms, only \$154 million has been disbursed. Moreover, all are woefully under-funded relative to even the lower register estimates above. Additional funds will be needed to meet the task.

With the G7 Gleneagles aid commitments to Sub-Saharan Africa still \$14.5 billion shy of the \$21.5 billion 2010 target, the prospects for mobilizing an even greater amount on top of that for climate adaptation throughout the developing world is daunting.

- *Mechanisms:*

Given the desire to mobilize substantial resources on an annual basis over a sustained period, resource mobilization mechanisms that have some degree of automaticity, such as an automatic share of carbon revenues or some kind of tax on certain transactions have considerable appeal in principle, although not much of a track record in practice. One long-standing proposal looks to link the creation of the International Monetary Fund's Special Drawing Rights (SDRs) with the financing of global public goods that benefit humanity as a whole, including climate protection as well as protection from infectious disease.

In both the U.S. and the EU policymakers are considering legislation that would create new adaptation funds capitalized by revenues from auctioning emissions rights under national and regional cap-and-trade programs. According to EPA analysis, the Waxman-Markey bill would allocate approximately \$3.4-5.4 billion annually by 2020 for direct climate change assistance from the U.S. government to developing countries (\$476-786 million for clean technology deployment, \$2.4-3.8 billion for international forest conservation, and \$476-768 million for adaptation). In Europe, annual auction revenues from the Emissions Trading Scheme (ETS) are estimated to reach €75 billion (\$105 billion) in 2020, of which 20 percent, or €15 billion (\$21 billion), would be dedicated to climate-change related activities including efforts to facilitate adaptation in developing countries. One problem with allocating a fixed proportion of allowance revenue for adaptation finance is that adaptation funds would be small in the beginning and would grow later as the value of the allowance goes up whereas there is an immediate need for investments in support of adaptation.

Revenues raised from international air travel, bunker fuels, and free allowances under cap-and-trade bills represent potential new sources for adaptation funding that would be more predictable than yearly appropriations, much like cap-and-trade allowances.

- *Governing Funds:*

Since adaptation planning and implementation must be done across sectors at national and local levels, assistance must be provided horizontally and must be integrated with national development planning. Moreover, for recipients to be active stakeholders, they should have considerable say over the allocation of the funds; something developing countries feel strongly about.

### **Recommendations for Action**

Because a relatively small number of large emitters (counting the EU as one actor) account for more than 80 percent of all emissions (with China and the U.S. alone accounting for about 40 percent of GHG emissions), there is a strong case for letting the group of major emitters, and particularly the U.S. and China, play a key and leading role in the global solution. It would be a mistake, however, to abandon or marginalize the UN-led, global UNFCCC framework.

There is something about a universal or close to universal agreement that generates greater legitimacy than a treaty between a limited number of countries, particularly when it relates to the future of the planet. It is not unreasonable to suggest that a universal framework for the protection of climate and of related matters such as biodiversity will benefit from a degree of legitimacy and support that a simple “minilateral” treaty will not be able to attract.

The way forward should be to continue to work within the “universal” UNFCCC framework, but support that process with “minilateralist initiatives” and various practical and flexible approaches, with the aim of putting in place the building blocks of globally accepted and enforceable policies.

- *Continue Bilateral Negotiations Between China and the U.S.*

Reaching consensus on climate change between the world’s two largest greenhouse gas emitters in a manner that serves the interests of both parties will be central to forging a strong agreement in Copenhagen. Echoing recommendations forwarded by my Brookings colleagues Kenneth Lieberthal and David Sandalow (now U.S. assistant secretary of energy for policy and international affairs), China and the U.S. should focus their bilateral negotiations on a number of flagship efforts to promote clean energy. Proposals include creating a new dialogue on climate change and energy to parallel the existing Strategic Economic Dialogue, achieving one or two headline initiatives—such as developing commercial, operational carbon capture and storage projects—and promoting capacity development for monitoring and reporting GHG emissions. These efforts would go a long way towards overcoming issues of mutual mistrust between the two countries and could help significantly in shaping an agreement in Copenhagen. Nonetheless, this should not be presented or interpreted as the emergence of a Climate Change G-2 that would impose its views on the rest of the world. Such a perception would generate political reactions that could undermine a broader agreement. U.S.-China cooperation should be explicitly designed to exert the kind of leadership that will bring other countries into a broader deal, not as something they will resent.

- *Engage at the Major Economies Forum (MEF) on Energy and Climate Change*

Continued engagement at the MEF (which includes Australia, Brazil, Canada, China, the Czech Republic, Denmark, the EU, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, South Africa, South Korea, Sweden, the UK, and the U.S.) could catalyze significant movement on global and individual abatement targets. Mexico's recent commitment to reduce its CO2 emissions by 50 million tons annually has made it the first developing country to make a unilateral commitment and has positioned Mexico to be a key interlocutor in the months preceding Copenhagen. With the majority of developed countries considering abatement targets well short of the 25 to 40 percent reductions (relative to 1990 levels by 2020) called for by developing countries, the MEF might be the appropriate venue (given its smaller size and Mexico's potential to play an outsized role) to broker palpable departures from current negotiating positions and reach a greater consensus in advance of Copenhagen.

- *Re-envision success*

The desire to fully realize the Bali Roadmap and reach a broad and binding agreement in Copenhagen should not lead to an all-or-nothing approach for COP15. While time is not on humanity's side relative to IPCC forecasts, agreement on a broad framework, including 2020, 2030 and 2050 global targets, national targets for all developed countries, agreement to develop national action plans by most large emerging market economies and more detailed consensus on some issues—including reducing emissions from deforestation and degradation in developing countries (which seems likely) and/or technology cooperation—would be welcome progress. Such a “deal” would have to overcome most of the sticking points mentioned in this brief. The exact mechanisms and specific institutional arrangements that will have to govern carbon markets and adaptation finance may require more work, more detailed design and further political compromise. As long as COP15 can craft an initial broad agreement,

strong guidelines and ensure follow-up work on these matters, Copenhagen could still be a historic success.

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