

## Impacts of Climate Change

Wednesday, September 15 2004 - 10:00 AM - SR-253

The Testimony of

**The Honorable John McCain**

Chairman, U.S. Senator (R-AZ)

- Today the Committee meets for the third in a series of hearings this year on the very critical topic of the impacts of global climate change—an issue of world-wide importance.
- As I have stated numerous times at these hearings and in many discussions about climate change, the National Academy of Sciences (NAS) reported in 2001 that, “Greenhouse gases are accumulating in the Earth’s atmosphere as a result of human activities, causing surface air temperatures and subsurface ocean temperatures to rise. Temperatures are, in fact, rising. The changes observed over the last several decades are likely mostly due to human activities, but we cannot rule out that some significant part of these changes is also a reflection of natural variability.”
- While the NAS statement allows that factors other than human activity may affect temperatures, there is broad scientific consensus that global warming is occurring, that human activity is contributing to it, and that its consequences are extremely serious. The science of climate change has progressed significantly since that time. The Administration recently released a report entitled, *Our Changing Planet: The U.S. Climate Change Science Program for Fiscal Years 2004 and 2005*, which has been described as “the best possible scientific information” on climate change. It offers some important findings on recent scientific research results. Included are:
  - “Comparisons of index trends in observations and model simulations shows that North American temperature changes from 1950 to 1999 were unlikely to be due only to natural climate variations. Observed trends over this period are consistent with simulations that include anthropogenic forcing from increasing atmospheric greenhouse gases and sulfate aerosols.”
  - “...a growing body of evidence suggests that shifts in the oceanic distribution of fresh and saline waters are occurring in ways that may be linked to global warming and possible change in global water cycle.”
  - “Satellite data also show that the portion of the Arctic Ocean covered by perennial sea ice has declined by about 9% per decade since 1978. The longer melt season and loss of perennial sea ice cover can have large-scale climate consequences.”
  - Now the challenge is to update the policy positions to be consistent with the science. However, it has been noted by Administration officials that there is no change in the Administration policy position.
  - Further, many well respected periodicals including *National Geographic*, *Business Week*, *Nature*, *Smithsonian*, and *Science* have recently featured cover story articles containing startling information on the impacts of climate change. The *National Geographic* devoted 74 pages on the necessity of tackling our planet’s problem on global warming while *Business Week* highlighted the challenges faced by businesses as a result of climate change.
  - *Business Week* specifically noted that some companies are actually improving their financial performance by reducing emissions. This financial improvement is occurring despite having corporate emission targets that are more aggressive than those required by the McCain/Lieberman’s Climate Stewardship Act. Much of this was noted by Senator Lieberman and I in a “Dear Colleague” letter earlier this week.
  - Last month, I visited the Arctic region and saw first hand the impacts of

climate change on the region. These impacts are real and are consistent with earlier scientific projections that the polar regions would experience the effects of climate change at a faster rate than the rest of the globe. The retreating glaciers provide irrefutable evidence supporting the need to take action on this issue. We cannot continue to ignore an issue that is not static. We need to take action that extends well beyond eloquent speeches, and includes meaningful actions such as real reductions in the emission of greenhouse gases. • It has been said that we are the first generation to influence global climate change and the last generation to escape the consequences. I hope that today's hearing will help in mapping an "escape" and I welcome our witnesses here today and look forward to their testimony.

The Testimony of

**Dr. Daniel Cayan**

Research Meteorologist, Scripps Institution of Oceanography, University of California, San Diego

Mr. Chairman and Members of the Committee, thank you for this opportunity to discuss recent scientific research concerning climate change impacts. Specifically, we are here today to discuss a landmark climate change study conducted by 19 scientists and recently published in the Proceedings of the National Academy of Sciences. The study was authored by leading experts from a number of universities and research institutions including Stanford University, University of California at Berkeley, Scripps Institution of Oceanography, National Center for Atmospheric Research, Union of Concerned Scientists and Lawrence Berkeley National Laboratory. Studies of regional-scale climate change impacts have traditionally asked "What will the impacts of climate change be?" This study is groundbreaking in that it asks "What are the consequences of following markedly divergent pathways of future greenhouse gas emissions?" Using two of the latest-generation global climate models, we compared the implications of the lowest and highest scenarios of future emissions that have been developed by the Intergovernmental Panel on Climate Change for climate change and associated impacts on the state of California. Such a comparison can better serve to illuminate the consequences of meaningful mitigation.

We selected California as the focus of our study due to its diverse climate zones, its large economy (ranked the 5th largest in the world) which includes climate-sensitive industries such as agriculture and tourism, and its substantial contributions to global greenhouse gas emissions. However, the results should be broadly applicable to the western US and the approach we have taken can be readily applied to other U.S. states and regions of the world. The following outlines the projected impacts of climate change on California's environment and economy.

**Climate Projections** The climate projections used in this study improve upon earlier research by using two of the latest-generation global climate models and lower- and higher-emissions scenarios instead of a single mid-range scenario (Figure 1). One model is the low-sensitivity Parallel Climate Model (PCM) developed by the National Center for Atmospheric Research. The other model is the medium-sensitivity Hadley Centre

Climate Model, version 3 (HadCM3), developed by the U.K. Met Office. The higher-emissions scenario (A1fi) assumes continued intensive reliance on fossil fuels, causing heat-trapping emissions to grow rapidly throughout the century. The lower-emissions scenario (B1) envisions a transition to clean energy technologies and a shift to a service and information-based economy, causing emissions to peak by mid-century and then decline below current levels by 2100. These scenarios bracket a large part of the range of Intergovernmental Panel on Climate Change nonintervention emissions futures with atmospheric concentrations of CO<sub>2</sub> reaching ~ 550 ppm (B1) and ~ 970 ppm (A1fi). The higher and lower emissions scenarios used in this study do not explicitly assume climate-specific policy interventions, and they should be viewed neither as upper or lower bounds on possible future emissions. Actual emissions could conceivably be higher or lower depending on societal and policy choices made over the next few decades. However, the scenarios do serve as useful proxies for assessing the outcome of emissions pathways that could result from different emissions reductions policies. The lower scenario (B1) used in this study is comparable to an emissions pathway that could be achieved by relative aggressive emissions reductions policies, whereas the higher (A12fi) scenario is comparable to an emissions pathway that would be more likely to occur in the absence of such policies.

**Temperature.** Temperatures are projected to increase substantially under both the lower- and higher-emissions scenarios, with differences between the scenarios emerging by mid-century (Figure 2). By mid-century, average summer temperatures are projected to rise about 2 to 4°F under the lower emissions scenario and 2.5 to 5.5°F under the higher-emissions scenario. Toward the end of the century, average summer temperatures are projected to rise about 4 to 8.5°F under the lower-emissions scenario and 7.5 to 15°F under the higher-emissions scenario.

Average winter temperatures are projected to rise about 2 to 2.5°F by mid-century under both emissions scenarios. By the end of the century, average winter temperatures are projected to rise about 4°F under the lower-emissions scenario and 5.5 to 7°F under the higher-emissions scenario.

**Precipitation.** Winter precipitation, which accounts for most of California's annual total, decreases 15 to 30 percent before the end of the century in three out of four model runs. However, in one model run, winter precipitation increases approximately five percent. These results differ from some projections developed using earlier models, which suggested that precipitation could double or even triple by the end of the century. The precipitation projections described here do not differ between emissions scenarios.

**Rising Sea Levels** Sea levels along the California coast will likely continue rising over the next century. Depending on the climate model used, sea levels could rise at a rate similar to the historical rate of about seven inches per century (approximately the present rate estimated for global sea level rise), to a rate that is almost four times faster.

Projected rates in the models considered here are consistently higher under the higher-emissions scenario. San Francisco Bay and the Sacramento-San Joaquin Delta are

particularly vulnerable to rising sea levels, which can increase the risk of storm damage, erosion, and flooding of leveed islands, valuable real estate, and rich wetland ecosystems. Higher sea levels could also allow saltwater intrusion into aquifers and the rich ecosystems found at the mouths of rivers. These consequences could be especially severe during El Niño years, when sea levels and coastal waves along the California coast are already unusually high and winter storms can bring torrential rains. Extreme Heat As average temperatures rise, extreme-heat conditions such as heat waves are projected to become more common and severe. Differences between the emissions scenarios emerge by the 2050s with the most persistent and severe high-temperature conditions projected for inland locations that are already hot. However, the impact on human health could be greatest in cooler coastal cities where extreme-heat conditions have historically been relatively rare. Projections for five major metropolitan areas (Los Angeles, Riverside/San Bernardino, San Francisco, Sacramento, and Fresno) show that heat waves will likely occur more frequently and last longer (Figure 3). For example, the average heat wave could increase in length from about two to five days during the 1990s to about 5 to 12 days by the 2050s and 6 to 19 days by the 2090s. Furthermore, the heat wave season will likely grow considerably longer, particularly in coastal and more southern locations. In Los Angeles, for example, the heat wave season is projected to increase from about 14 weeks during the 1990s to about 19 to 25 weeks by the 2090s under the lower-emissions scenario and 31 to 37 weeks—a total of nearly eight to nine months—under the higher-emissions scenario.

**Climate Change and Human Health** Climate change is likely to affect human health in numerous ways, including increased heat stress and related deaths, changes in the incidence of infectious disease, and a higher risk of respiratory and other problems caused by deteriorating air quality. This study focused on mortality associated with increased heat, which can cause death through dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress. The most vulnerable members of the population include people who are already ill, children, the elderly, and the poor. While warmer winter temperatures are expected to reduce cold-related deaths in some regions, the increasing health risks associated with summer heat are expected to far outweigh any positive effects of warmer winters in California. Estimates of future heat related mortality for the five metropolitan areas studied show that: (1) The annual number of heat-related deaths is projected to increase an average of about 60 to 180 percent by the 2050s and 130 to more than 500 percent by the end of the century in four of the five cities analyzed (Figure 3). (2) The risk grows with increasing emissions of heat-trapping gases. On average, mortality estimates for the higher-emissions scenario are on the order of 10 to 100 percent higher than estimates for the lower-emissions scenario during the 2050s and about 100 to 150 percent higher during the 2090s. These findings suggest that, for the five cities combined, we could prevent somewhere between 500 and 5,000 heat-related deaths during the 2050s and more than 8,000 deaths during the 2090s by following a lower-emissions pathway and (3) Of the five cities, San Francisco appears most susceptible to increasing heat, as the population has limited ability to adjust to heat. Fresno, which already experiences frequent extreme heat, appears to be the least susceptible to increasing heat.

Water Resources in California Already scarce throughout the western United States, water is essential to maintaining California's agricultural economy, expanding population, and unique ecosystems. Meeting the state's growing water demand is particularly challenging because precipitation is highly variable from year to year in California, because it has a limited water reservoir storage capacity, and because most of the water demand is in summer, but it is supplied almost exclusively in winter during winter storms. Most of the state's precipitation falls in the north during the winter, while much of the demand for water occurs in the south during the spring and summer. As a result, a vast network of reservoirs and aqueducts is needed to capture, store, and distribute water from the Colorado River and Northern California waterways. Climate change will likely reduce water supplies during the spring and summer, requiring costly new infrastructure and changes in the institutions that govern California's water resources.

Reduced Snowpack and Stream Flow Rising temperatures, possibly exacerbated by reduced winter precipitation, will severely reduce snowpack in the Sierra Nevada. This, in turn, will affect stream flow, water supplies, and winter recreation. The Sierra Nevada snowpack—roughly equal to half the storage capacity in California's human-made reservoirs—is a critical source of water during the late spring and summer. There are already signs that spring snowpack has diminished significantly across the mountainous West, as was reported by Dr. Phillip Mote in his testimony to you on May 6, 2004. The western spring snowpack is expected to decline further in the next several decades, as warmer winter storms more frequently bring rain to the mountains instead of snow, and warmer temperatures cause the snowpack to melt prematurely. By mid-century, the model runs conducted in the present study project that spring snowpack in the Sierra Nevada will decline about 25 to 40 percent. Toward the end of the century, losses could reach 30 to 70 percent (or 3.5 to 9 million acre-feet of storage) under the lower emissions scenario or a stunning 70 to 90 percent (or 9 to 11 million acre-feet) under the higher emissions scenario (Figure 4).. Associated with these springtime losses in snowpack, it is likely that there would be higher early season flows, which would increase the likelihood of flooding in the middle and lower reaches of the Sierra catchments. This would be disastrous, since these lower lying areas are the most developed part of these watersheds, as well as containing much of the state's valuable agriculture. A combination of delayed snow accumulation and earlier snowmelt could shorten the Sierra Nevada ski season by three to six weeks by 2050. Toward the end of the century, climate change could delay the start of the ski season three to six weeks under the lower-emissions scenario, possibly affecting holiday profits, and shorten the ski season by 7 to 15 weeks. Under the higher-emissions scenario, the minimum snow conditions required for current ski resort operations might never occur. In most cases, total annual stream flow into major Sierra Nevada reservoirs is projected to drop about 10 to 20 percent before mid-century and 25 to 30 percent before the end of the century, with the greatest decrease occurring under the higher-emissions scenario. In one model run, however, a modest increase in winter precipitation leads to a slight increase in stream flow. As the timing of runoff shifts earlier, spring and summer stream flow is projected to decline about 10 to 20 percent before mid-century under the lower-emissions scenario and 20 to 25 percent under the higher-emissions scenario. Before the end of the century, spring and summer stream flow

could be reduced as much as 40 percent under the lower-emissions scenario and 45 to 55 percent under the higher-emissions scenario.

Managing Water Resources in a Changing Climate Changes in snowpack and stream flow have important implications for water managers, who must balance the needs of water users against flood protection and habitat requirements. Since the demand for water is greatest when and where it is in short supply, meeting California's growing demand in the face of less reliable supplies will likely require changes in how the state's reservoirs and water distribution systems are managed. Such decisions are complicated by a cumbersome water rights system that generally gives precedence to the earliest diverters of water and farmers adjacent to existing streams and rivers on a "first in time, first in right" basis. As a greater proportion of annual runoff occurs during the winter and the summer dry period becomes even longer than today's, managers will have an increasingly difficult time balancing the need to capture runoff for future use and the need to maintain space for winter flood protection. Additional aboveground storage could be built, but economic and environmental costs make such projects problematic. Surface water could be transferred to groundwater aquifers for storage, but such projects are both costly and vulnerable to unauthorized extraction and water quality problems. Water shortages will likely become more common as summer stream flow becomes less reliable. Toward the end of the century, the number of years with dry or critically low stream flow conditions is projected to increase from 32 percent during the years 1906–1999 to between 50 and 65 percent unless precipitation increases. As stream flow becomes less reliable, the value of rights to mid- and late-season natural stream flow is likely to decline, disrupting the current water rights system. Coping with the worst consequences of climate change could require major changes in the way water is allocated in California. Agricultural users sometimes sell their water rights to municipal water districts, suggesting that such adjustments can be made. However, the process is likely to be slow and expensive.

Rising Temperatures and California Agriculture Climate change could affect California agriculture by increasing water demand in the face of less reliable supplies, altering the abundance and distribution of pests and pathogens, and causing variations in crop quality and yield. In addition, rising levels of carbon dioxide in the atmosphere can also affect agriculture directly, by stimulating production and increasing the efficiency with which crop plants use water. The report focused on the direct effects of high temperatures on dairy products and wine grapes (California's leading agricultural products) and did not consider changes in water availability or the effects of rising carbon dioxide levels.

Wine Grapes California is known throughout the world for its wines. Along with the famous Napa and Sonoma Valleys, wine grapes are grown throughout the Central Valley and along the northern and central coasts, adding up to a \$3.2 billion industry. High-quality grapes are key to producing high quality wine, and grape quality is sensitive to heat and moisture stress during ripening. Rising temperatures during the growing season could cause grapes to ripen prematurely, and reduce grape quality. Temperature projections for the top grape-producing counties suggest growing conditions will likely deteriorate over the coming decades, except in the coolest locations. Warmer

temperatures throughout the growing season are projected to cause wine grapes to ripen as much as one to two months earlier before the end of the century, and higher temperatures during the final month of ripening would likely reduce grape quality. During the early decades of the century, grape-growing conditions are projected to change little in many regions, including Napa, Sonoma, and Mendocino Counties, but deteriorate in the warmer Central Valley. However, toward the end of the century, warmer temperatures are projected to degrade grape growing conditions in all but the coolest coastal locations (Mendocino and Monterey Counties).

Dairy Heat stress in dairy cows can lead to poor feeding, weight loss, and reduced milk production, which begins to decline at temperatures as low as 77°F, and can drop substantially as temperatures climb above 90°F. California's \$3 billion dairy industry is currently concentrated in the southern Central Valley, where temperatures are projected to rise rapidly during the coming decades. Toward the end of the century, high temperatures could reduce milk production by as much as 5 to 10 percent under the lower-emissions scenario and 10 to 20 percent under the higher-emissions scenario. Measures for relieving heat stress, such as providing shade and sprinklers, can be effective under some conditions but become less so with increasing temperature and humidity.

Changes in Vegetation Distribution California's size, varied terrain, and diverse climate zones combine to create a wide range of natural ecosystems that support thousands of plant and animal species, including many that are found only in the state. Projected increases in temperature and fire frequency will likely cause rapid changes in vegetation distribution, which has serious implications for ecosystem health and species diversity. Alpine and subalpine vegetation will likely be displaced as mixed evergreen conifer forest extends its range upward in elevation. With limited opportunity for migration, losses of alpine and subalpine vegetation cover could reach 40 to 50 percent before 2050 and 60 to 80 percent by 2100, with consistently greater losses under the higher-emissions scenario. Throughout much of the northern portion of the state, warmer temperatures are projected to cause a change in forest composition from evergreen conifer forest (dominated by Douglas fir and white fir) to mixed evergreen forest (dominated by tan oak, madrone, and live oak). Warmer temperatures and drier conditions in most inland areas are expected to increase fire frequency, leading to the likely displacement of shrublands and woodlands by grasses (which recover quickly after fires). In contrast, projected increases in humidity along the southern coast would discourage fire, allowing coastal forests to expand their range. The prominent role fire plays in these projections suggests that further work should be done to assess changes in fire risk and the associated impact on property, air quality, and ecosystems. In the southern Central Valley, the hotter and drier conditions projected in most model runs would reduce the growth of grasses as well as trees and shrubs, leading to an expansion of desert. In one model run, however, less warming and slightly wetter conditions are projected to increase fire frequency, allowing grasslands to displace shrublands as in other parts of the state.

**Conclusion** This study finds that both lower and higher scenarios of future emissions of greenhouse gases produce considerable warming and substantial impacts on temperature-

sensitive sectors in California. However, the most severe impacts and the highest costs of adaptation occur under the higher (A1fi) emissions scenario. Moreover, adaptation options are severely limited for impacts not easily controlled by human intervention, such as the marked decline in snowpack and the loss of alpine and subalpine forests. Differences between higher and lower emissions scenarios in projected climate impacts and costs of adaptation emerge mainly in the second half of the century. However, because the Earth's climate changes over the course of decades in response to accumulated forcings from anthropogenic emissions of greenhouse gases, these differences are largely driven by emissions choices made in preceding decades. Mr. Chairman and Members of the Committee, we hope that these results help make clear the benefits of following a lower emissions pathway for California, the nation and the world. Thank you for the opportunity to testify today on this important study and this important issue. We would be happy to answer any questions.

More information is available at <http://www.climatechoices.org>.

Figure 1: Global emissions scenarios, Intergovernmental Panel on Climate Change (Source: see Endnote 4)

Figure 2: California statewide average summer temperatures (Source: UCS. 2004. Climate Change in California: Choosing Our Future. Cambridge, MA: Union of Concerned Scientists. A summary prepared by the Union of Concerned Scientists based on data from Endnote 1) Figure 3: Extreme heat and heat-related mortality in California (Source: based on data from Endnote 5)

Figure 4: % remaining snowpack, relative to 1961-1990, based on climate projections from the HadCM3 model. (Source: UCS. 2004. Climate Change in California: Choosing Our Future. Cambridge, MA: Union of Concerned Scientists. A summary prepared by the Union of Concerned Scientists based on data from Endnote 1)

The Testimony of

**Ms. Sheila Watt-Cloutier**

Chair, Inuit Circumpolar Conference, Office of the Chair

Good morning. My name is Sheila Watt-Cloutier. I am the elected Chair of the Inuit Circumpolar Conference which represents internationally the 155,000 Inuit who live in Alaska, Canada, Greenland and Chukotka, Russia. I want to thank the Chair, Senator McCain, and all members of the committee for the invitation to speak with you.

I provided written testimony to this Committee last spring, and I am here today, having made the trip to Washington DC from my home in Iqaluit, Nunavut, the new territory in the Canadian Arctic, because I believe that we find ourselves at the very cusp of a defining moment in the history of the planet. The earth is melting and we must all come together to do the right thing to address Climate Change.

While global warming is affecting the entire planet, there is a scientific consensus that it is impacting the Arctic much faster. Our elders having been experiencing these changes since the mid-1970's. The Inuit connection to the environment remains strong, and many of us still depend upon the land and sea to sustain our families. Our elders and hunters have intimate knowledge of the land, sea ice, and have observed disturbing changes to the Arctic Climate and environment, and to the wildlife. These changes include: 1. melting permafrost causing beach slumping and increased erosion and damaging infrastructure; 2. longer sea-ice free seasons; 3. new species of birds and fish-barn owls, robins, pin-tailed ducks and salmon invading the region; 4. invasion of mosquitos and blackflies; 5. unpredictable sea-ice conditions; 6. glaciers melting, creating torrents in place of streams. Our observations are confirmed by western science in the Arctic Climate Impact Assessment (ACIA) which is to be presented to Ministers of Foreign Affairs of the eight Arctic states in November. Let me quote two key conclusions from the summary volume of the ACIA: 1. Marine species dependent on sea-ice including polar bears, ice living seals, walrus, and some marine birds are very likely to decline, with some facing extinction; and 2. For Inuit, warming is likely to disrupt or even destroy their hunting and food sharing culture as reduced sea-ice causes the animals on which they depend to decline, become less accessible or possibly go extinct. I remind you that the ACIA is the most comprehensive regional Climate Change assessment ever undertaken. Over 300 Scientists and many indigenous peoples of the Arctic actively participated in this assessment. It states that our ancient connection to our hunting culture may well disappear, and within my grandson's lifetime. My culture continues to see us through much tumultuous change. This change has resulted in confusion and despair--and all too often in early death for our young people from suicides and addiction.

Inuit face many challenges in finding our place in the new world order of globalization. A place that affords us self-respect and security, and in which we also contribute to the well-being of others. Notwithstanding our struggles and our limited numbers, we Inuit do have a significant role to play globally. Especially now with the threat of climate change to our entire way of life, we need to capture the world's attention and conscience. Climate change is happening first and fastest in the Arctic. My homeland-the Arctic-is the health barometer for the planet. By looking at what is already happening in remote Inuit villages in Alaska, such as Shismaref and Kivalina, you can understand the future dangers for more populated areas of the world such as Florida, Louisiana or California. Shismaref is literally being battered to the point of falling into the sea.

If we can reverse the emission of climate change inducing greenhouse gases in time to save the Arctic from the most devastating impact of global warming, then we can spare untold suffering for hundreds of millions of people around the globe. Protect the Arctic and we Save the Planet. Use us in the Arctic as your early warning system. In the 1940s, you, the Americans, set up a defense early warning system throughout the North American Arctic called the DEW line-short for Defense Early Warning. It is now time for another DEW line-Defense Environmental Warning--against climate change. Global warming connects us all. Use what is happening in the Arctic-the Inuit Story-as a vehicle to re-connect us all, so that we may understand that the planet and its people are one. The Inuit hunter who falls through the depleting and unpredictable sea- ice is connected to the

cars we drive, the industries we rely upon, and the disposable world we have become. I ask you to look seriously at the Arctic for solutions to the global debate on Climate Change. More specifically I ask you to look at the role your Department of State is playing in the Arctic Council's Arctic Climate Impact Assessment process. This assessment has been largely paid for by the United States, which has also provided an assessment secretariat based at the University of Alaska at Fairbanks. Bob Corell of Harvard University and the World Meteorological Institute has done a superb job of Chairing the exercise.

The assessment is path-breaking and it is crucial that the world know and understand what it says. Yet the Department of State is minimizing and undermining the effectiveness of this assessment process by refusing to allow policy recommendations to be published in a stand alone form just like the assessment itself. Yet, this is what ministers of foreign affairs directed when, in Barrow Alaska in October 2000, they approved the assessment. I wrote to the Arctic Council chair last week about this, and have copies of this correspondence for the committee.

In closing, I grew up in the small community of Kuujjuaq in the Ungava Bay in northern Quebec and traveled by dog team for the first ten years of my life. Americans played a very important role in the history of my community. During the second world war many Inuit were starving, caught in a transition between a nomadic way of life and moving into a settled community. At that time, when most Inuit thought they had been totally forgotten, the Americans arrived to build airstrips, bringing with them jobs for the men, and supplies and food for the community. They came through for us during those challenging times in a very big way. Until her death two years ago, my mother always stated: "we would not have pulled through if it were not for the arrival of the Americans". The Inuit once again need your help in these challenging times. The ACIA projects the end of Inuit as a hunting culture that has sustained us for millennia. Come back to help us. I have already said that what is happening in the Arctic is a snapshot of the future of the planet, and that, indeed, we are all connected. Climate change is a matter of the survival of humanity as whole. It is the most pressing global issue we face today. Protect the Arctic and we will save the planet.