



1. NATIONS: Pakistan -- a sad new benchmark in climate-related disasters (08/18/2010)

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UNITED NATIONS -- Devastating flooding that has swamped one-fifth of Pakistan and left millions homeless is likely the worst natural disaster to date attributable to climate change, U.N. officials and climatologists are now openly saying.

Most experts are still cautioning against tying any specific event directly to emissions of greenhouse gases. But scientists at the World Meteorological Organization (WMO) in Geneva say there's no doubt that higher Atlantic Ocean temperatures contributed to the disaster begun late last month.

Pakistani relief helicopter

Reaching for help: A Pakistani Army helicopter brings aid to a few of the estimated 6.5 million flood refugees. Photo courtesy of Jacob Freeze.

Atmospheric anomalies that led to the floods are also directly related to the same weather phenomena that caused the record heat wave in Russia and flooding and mudslides in western China, said Ghassem Asrar, director of the World Climate Research Programme and WMO. And if the forecasts by the Intergovernmental Panel on Climate Change (IPCC) are correct, then Pakistan's misery is just a sign of more to come, said Asrar.

"There's no doubt that clearly the climate change is contributing, a major contributing factor," Asrar said in an interview. "We cannot definitely use one case to kind of establish precedents, but there are a few facts that point towards climate change as having to do with this."

There's also no doubt that the Pakistan flooding will join the ranks of the worst natural disasters in recorded history.

The flooding started slowly at the end of July and gradually accelerated over the past two weeks. Disaster assessment maps show that almost the entire northern part of Pakistan and most of its central region have been hit.

During the most intense storms, about a foot of rain fell over a 36-hour period. Parts of the affected areas, in particular Khyber-Pakhtunkhwa province (formerly Northwest Frontier province) received 180 percent of the precipitation expected in a normal monsoon cycle. More rain is

expected in the days ahead.

Records show that the famed Indus River is at its highest water level ever recorded in the 110 years since regular record-keeping began. Estimates put the number of displaced people at somewhere between 15 million and 20 million, and the government believes about 1,600 are confirmed dead. 6.5 million need food, drinking water and medicine

The International Organization for Migration says the greatest immediate need is in Punjab, where roughly 500,000 families pushed out by the floods are awaiting assistance. All told, agencies guess that about 6.5 million Pakistanis need shelter, food, potable water and medicine.

"This is a disaster which has affected many more people than I have ever seen," said John Holmes, head of the U.N. Office for the Coordination of Humanitarian Affairs, who also leads relief efforts in Haiti.

Zamir Akram, Pakistani ambassador to the U.N. center in Geneva, said floodwaters now cover an area roughly the size of England. Satellite surveys show about 160,000 square kilometers (62,000 square miles) is underwater, or about one-fifth of Pakistan's landmass and roughly equivalent to the areas of Austria, Belgium and Switzerland combined.

Asrar at the WMO says higher-than-average Atlantic temperatures and conditions made ripe by the La Niña cycle of lower temperatures in the central Pacific Ocean created the perfect conditions for the rains. Experts acknowledge that the scale of this disaster has been made worse by a history of deforestation and land-use changes in the affected areas, but Asrar insists that the sheer volume of precipitation absorbed by clouds and then dumped on Pakistan is chiefly to blame.

Climate scientists at WMO and elsewhere, including those with the U.S. National Oceanic and Atmospheric Administration, say this year's summer is one of the hottest ever, with high temperatures breaking records across the United States, Europe and Central Asia. Consequently, the surface of the Atlantic has also been much warmer than usual.

The IPCC assessment reports note that higher ocean temperatures lead to more water vapor entering the atmosphere. This fact, Asrar said, already pointed toward a stronger than usual monsoon season in store for South Asia.

Abnormal airflow dumps supersaturated air

Normal air patterns would have dispersed this precipitation over as wide an area as possible. But an abnormal airflow caused by La Niña created a

ridge of pressure that blocked the warm, saturated air from moving west to east normally, Arar said.

This same ridge prevented the rains from reaching western Russia, where a severe drought has been blamed for raging wildfires and the destruction of 20 percent of the wheat crop there. And with nowhere else to go, Pakistan and China's far west bore the brunt when the clouds became too saturated with moisture and opened up.

"Basically, this rift that was forming blocked the warm air moving from west to east, and then, on the other side, this air that was super saturated with water vapor had to precipitate all this excess water that was in the atmosphere, which created this unprecedented amount of rain in short period of time," Asrar explained. "The connecting factor is that clearly the warming is a driver for all these events."

U.S. Army Chinook

A U.S. flood relief helicopter flies over a washed-out bridge in the swollen waters of Pakistan's Swat valley. Photo courtesy of Sgt. Monica K. Smith/ U.S. Army.

The United Nations says that \$459 million is need for international and nongovernmental relief agencies to respond to the disaster. About 35 percent of that appeal is now funded, mostly by contributions from the U.S. and U.K. governments.

Donations from other corners and the private sector have been slow in coming, though aid officials are reporting an uptick in contributions in recent days.

"The response has been a bit slower than perhaps with other disasters but definitely donations are starting to come now," said Airlie Taylor at the London offices of ActionAid International. "I think the world is now starting to wake up to the magnitude of the crisis."

The International Federation of Red Cross and Red Crescent Societies (IFRC) is asking for \$16 million in donations to buffer the emergency relief activities of the Pakistan Red Crescent Society.

Though more rain is expected and the southern reaches of the country can expect further flooding as the rivers drain out, rumors that India might release even more water from dams upstream are causing a panic in some areas. Pakistani authorities say the rumors are baseless and are desperately trying to get the word out to prevent a spread of disorder.

"The data collected about the Indian dams on Ravi, Sutlej and Beaus

Rivers indicate that these dams are not yet filled to their capacity and further no flood producing strong monsoon rainy system is in sight," said Qamar-uz-Zaman Chaudry, head of the Pakistan Meteorological Department, in a release. "As such we may not expect that India would release sudden flood water in these rivers in the next five to ten days at least."

Hundreds of thousands of homes lost

Hundreds of thousands of homes have been completely swept away all over the country, and several communities have been cut off from the outside world as floodwaters washed bridges and roads away. Officials don't yet know what the full cost of recovery will be, but all expect it to be tremendous -- Akram in Geneva told reporters that the cost to rebuild Khyber-Pakhtunkhwa province, one of the hardest hit, would be at least \$2.5 billion.

"The needs on the ground require a massive response," said IFRC chief Bekele Geleta. "It's not just about saving people's lives today; we need to plan for their long-term recovery tomorrow."

The litany of weather incidents during the summer of 2010 reads like the latest Hollywood global disaster movie.

The hottest summer ever recorded in 130 years has sparked thousands of wildfires in Russia, burning some entire villages to the ground, killing 53 and leaving 3,500 homeless, according to Russian state media. Cooler temperatures are finally bringing some relief, shrinking the extent of the flames from more than 100,000 acres down to about 54,000 acres.

Next to Pakistan, record rainfall and subsequent flooding and mudslides in western China are estimated to have left roughly 1,200 dead and scores more homeless. China's government has been handling that crisis on its own and has yet to appeal for international support.

Russia's drought has reduced its wheat crop by 20 percent, and droughts in Canada are anticipated to reduce the crop there by an equal proportion. Though the Food and Agriculture Organization says the United States alone has enough grain in storage to meet the gap, the U.S. Department of Agriculture put out a warning last week that reduced yields from droughts in Europe and Africa have lowered food stores to levels close to those seen just before the onset of the 2007 food crisis in the developing world.

Less reported, on Aug. 5, a sensor on a NASA satellite recorded a massive chunk of ice breaking off a glacier in Greenland. The huge block

measures more than 77 square miles in size and is one of the largest calving incidents witnessed in the Northern Hemisphere.

Asrar and other WMO officials argue that the evidence linking all these events to climate change is strong.

"The occurrence of all these events at almost the same time raises questions about their possible linkages to the predicted increase in intensity and frequency of extreme events, for example, as stipulated in the IPCC Fourth Assessment Report published in 2007," WMO says in a report.