

11-29-2012

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Benjamin Witte-Lebhar

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## Recommended Citation

Witte-Lebhar, Benjamin. "Signs that climate change is already spelling big trouble for tiny El Salvador." (2012).  
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# Signs That Climate Change Is Already Spelling Big Trouble For Tiny El Salvador

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By Benjamin Witte-Lebhar

Sobering studies by development organizations, government offices, and UN agencies continue to underscore what many in El Salvador say they have already learned firsthand: climate change is a real and present danger for the disaster-prone Central American country.

El Salvador contributes a relatively tiny share of the global output of carbon dioxide (CO<sub>2</sub>) and other greenhouse-gas emissions thought to be responsible for rising temperatures and dangerous shifts in weather patterns. China and the US, the world's leading CO<sub>2</sub> polluters, emitted a combined 13 billion metric tons of the gas in 2009, according to the US Energy Information Administration (EIA). El Salvador, in contrast, produced roughly 6 million metric tons.

And yet few places in the world are feeling the sum affect of all those emissions as much as El Salvador, where doomsday predictions of climate scientists—rising sea levels, shifting weather patterns, ruined lives and livelihoods—show signs of already playing out. With climate change, we face a challenge much greater than we ever could have imagined a few decades ago," Herman Rosa Chávez, head of El Salvador's Ministerio de Medio Ambiente y Recursos Naturales (MARN), said during an Oct. 11 conference in San Salvador. "Each year that we do not act is one more year of losses."

## ***Rising waters***

In the Pacific coastal town of La Tirana, residents look on as more and more of the mangrove swamp on which they rely for food and income gets swallowed up by the sea. Approximately 305 meters of the mangroves have already disappeared, locals told journalist Simeon Tegel, a British freelancer who traveled to El Salvador on a grant from the Pulitzer Center on Crisis Reporting. If the water advances another 458 meters, the town itself will be submerged.

"Where would we go?" asked Nahun Diaz, a 26- year-old La Tirana resident who ekes out a living from the mangrove swamp by fishing for crabs. "We have no electricity, no running water, and no medical post. But at least we have the crabs, and we are happy here."

Climate scientists say sea levels are rising worldwide for two reasons: thermal expansion (as ocean water heats up, it expands) and melting ice masses. MARN worries that, in the next century, the phenomenon could cost El Salvador—a tiny country even by Central American standards—between 10% and 28% of its coastal territories.

### ***Wacky weather***

Many Salvadorans suspect climate change may also be contributing to the extreme-weather events that have walloped the country in recent years. In October 2011, the massive storm Tropical Depression 12-E killed some 35 people in El Salvador. It was by no means the deadliest such storm to hit the isthmus.

Thirteen years earlier, Hurricane Mitch took the lives of some 11,000 Central Americans. But 12-E was one of the costliest. For 10 days the storm churned over El Salvador, dumping record levels of rainwater. Mitch, the previous record holder, dropped 86 cm (nearly three feet) of rainwater. 12-E nearly doubled that, delivering roughly 1.52 meters during the course of a week and a half, MARN's Rosa Chávez reported at the time.

"We have a new phenomenon that we did not have before, intense and concentrated rainfall, and that is happening all over Central America," Chávez told Al Jazeera English in early 2011—several months before 12-E. "Therefore, what we are saying, whenever we can, is that climate change is not something that will come far in the future. It is something that is occurring already and is having significant impacts."

For geographic reasons, El Salvador and its Central American neighbors have always been vulnerable to big storms, which can strike the isthmus from both the Atlantic and Pacific sides. Observers say that in recent years, however, the frequency of such events has increased dramatically. MARN claims that, in the 1960s and 1970s, the area suffered just one such storm per decade. Two killer systems lashed El Salvador in the 1980s. Hurricane Mitch was one of four massive storms to strike during the 1990s. And, in the following decade, El Salvador was struck by eight such events.

### ***Trouble for farmers***

Because of shifting weather patterns, some Salvadoran farmers say they no longer know when to plant their crops. Some years the country's traditional wet season starts early and lasts longer than expected. Other years it arrives late. This past summer (July-August), drought parched parts of the country, prompting the government of President Mauricio Funes to distribute "agricultural packages"—containing crop seeds and fertilizer—in some areas.

"In the past, we knew that the rains would start in May and end in October. Now nobody knows when they will start or end, if there is going to be a drought or a storm," Carlos Barahona, a community organizer in El Salvador's Baja Lempa, told the Inter Press Service.

A recent study by the International Center for Tropical Agriculture (CIAT) and the International Maize and Wheat Improvement Center (CIMMYT) predicts that unless farmers can adapt—by

applying, for example, better soil- and water-management techniques—agricultural production in Central America will decline in the coming years. The study, *Tortillas on the Roaster*, coordinated by the humanitarian organization Catholic Relief Services (CRS), focused on the area's two most important food staples: corn and beans. El Salvador's corn production could drop by one-third in the next decade, the study warns. Bean harvests could fall by 25%.

"There is no quick fix. It's about getting back to basics," Paul Hicks, the El Salvador-based regional coordinator for CRS' Global Water Initiative Central America, wrote in an October press release. "Extension services across the region need to be reinvigorated to train small farmers in soil and water management. And governments need to lead, they have the ability to make a real difference through setting climate-smart agricultural policies."

### ***Contributing factors***

Geography is by no means El Salvador's only Achilles' heel when it comes to climate change. Widespread poverty compromises the country's ability to cope with natural disasters, as do problems with environmental degradation. One of the most deforested countries in the hemisphere, El Salvador is especially prone to flooding. Ironically, the country also suffers from what the UN's Economic Commission on Latin America and the Caribbean (ECLAC) calls "hydric stress," meaning it has a significant shortage of water suitable for human consumption.

Tests carried out in 2010 on 55 different Salvadoran rivers came up with alarming results: MARN researchers found that 90% of the samples tested would be unsafe for human consumption even if the water was first treated using conventional methods, namely boiling, chlorinating, or filtering. Disasters of any kind—be they devastating storms or droughts—tend to exacerbate the country's water problems, increasing in turn the risk that people will contract cholera, dysentery, and other waterborne illnesses.

The UN Disaster Assessment and Coordination (UNDAC) has gone so far as to rank El Salvador the world's single-most vulnerable country to natural disasters. The agency says 95% of the Salvadoran population lives in "high-risk" areas. "These figures are alarming and give rise to considerable concern in light of the projections that El Salvador will experience an increase in frequency and severity of natural hazards as a result of climate change, particularly in relation to extreme rainfall," UNDAC explained in a 2010 report. "The country is already witnessing such extreme events, with devastating consequences including economic and human loss."

### ***Racing to adapt***

President Funes and his environment minister say they have seen enough death and destruction to be convinced that climate change is real. "Climate change has harmful effects on societies, and particularly our country," Funes told reporters in late 2011.

MARN's Rosa Chávez has been even more outspoken, insisting that El Salvador has no choice but to adapt. "The only certainty we have is that it will get worse," he said.

The Funes administration has made climate change science mandatory in both public and private school curriculums. In the past three years, it has also spent some US\$34 million on infrastructure projects aimed at better protecting the country in flood situations. The Ministerio de Obras Publicas (MOP) plans to spend another US\$16 million in the remainder of President Funes' term in office. Elected in 2009, Funes—who for term-limit reasons cannot seek immediate re-election—is set to end his presidency in 2014.

"We're in the worst position because we have this [environmental] degradation and are so vulnerable to climate change. But at the same time we're in the best situation because we're reacting, and reacting on time," MARN Vice Minister Lina Poh explained in a recent television interview. Not everyone shares Poh's optimism. Frequent witnesses to the destructive power and crippling costs of events like last year's E-12, which caused an estimated US\$860 million in damages, some Salvadorans see government efforts to adapt to climate change as insufficient, if not altogether futile.