



ENVIRONMENT

How to reduce risks from mega-storms?

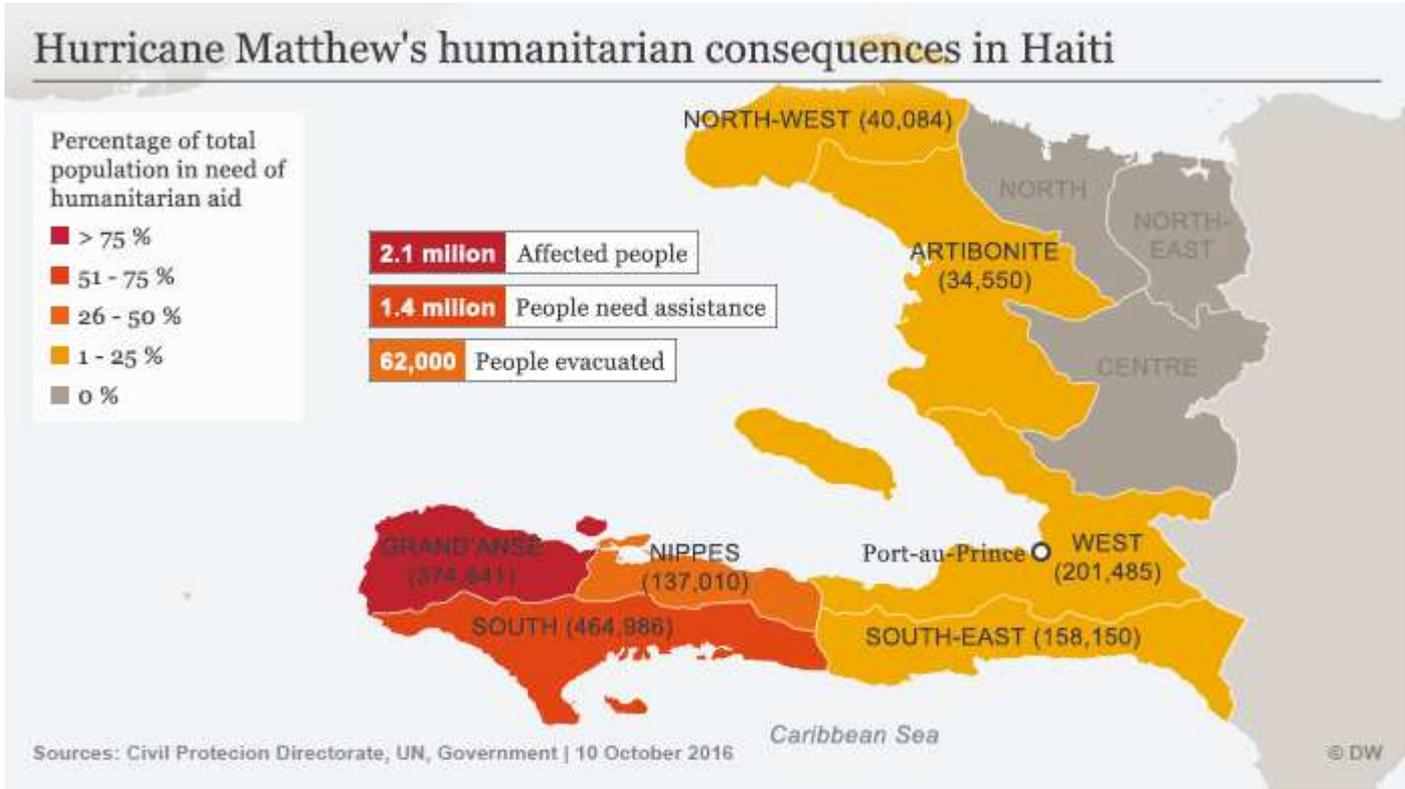
Climate change is increasing storm frequency and intensity, while sea level rise has made storm surge more dangerous. What solutions exist for reducing the risk of disaster? Hurricane Matthew provides recent lessons.



"Hurricane Matthew has been a surprise for the disaster risk community," Reimund Schwarze, chairman of the Scientific Advisory Board for the German Committee for Disaster Reduction (DKKV) told DW.

This bitter surprise has left some 2 million people affected in Haiti alone. Cropland and homes have been ravaged, [potable water is barely available](#), children cannot go to school and cholera is spreading quickly in affected areas.

Even though such extreme weather events have been present throughout history, climate change has increased their negative impact - in particular, through storm surge.



Sea level rise has expanded the flood risk for many regions - inundated subway stations during Hurricane Sandy in New York in 2012 provide a recent memorable visual.

Even though improvements in early warning systems over the past decade have saved tens of thousands of lives around the world, climate change is creating greater and often **unexpected effects from major storms**.

Experts say further prevention and greater awareness are key to reducing impacts from such mega-storms.

More prevention, less fatalities

Early warning systems - ranging from storm alerts in Europe to drought warnings via community radio in Kenya - have played a crucial role in reducing the number of deaths caused by extreme weather events.

"There have been 1,000 deaths in Haiti, but only 10 in the US - which shows how important prevention is," Schwarze said in reference to Hurricane Matthew.

Early warning systems were decisive for avoiding

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Disease, hunger loom in storm-ravaged Haiti

damages and saving lives in Florida, in stark contrast with Haiti, he pointed out.

Juan Carlos Villagrán, head of Spider (Space-based Information for Disaster Management and Emergency Response, a United Nations agency), confirmed that statistics indeed show a strong decrease in the number of fatalities caused by hurricanes since the 1990s.

However, he highlights the need for further prevention efforts - particularly in the form of awareness among the population.

"The notion of risk is not something we are taught at school, or that we talk about with friends, and it does not come up much in the media," Villagrán said.

"Our vulnerability remains hidden until disasters expose it."

The climate change factor

Unfortunately, early warning systems and meteorological forecasts are not sufficient to fight the devastating effects of mega-storms - which climate change will worsen.



Preventive measures taken by citizens in Florida helped protect them against Hurricane Matthew

"Climate change will unfortunately lead to more intense and more frequent hurricanes," Villagrán said. In addition, he mentioned, a new element has been added to the equation: rising sea levels.

A [recent study](#) has shown that by 2100, massive storms like Hurricane Sandy will become

three to 17 times more frequent, leading to extreme flood events over coming decades in the New York City area.

A major factor here is sea level rise - as ocean levels go up, storm surges can reach much further inland.

In 2012, Hurricane Sandy waters unexpectedly flooded New York's subways. And with Hurricane Matthew, even after the storm dissipated, floodwaters continue in certain areas - with deadly effect.

"For countries like Haiti, sea level rise means an additional risk - and they really need to prepare for it," Villagrán said.

Multipronged strategy

As storms become more extreme and their impacts greater due to factors like sea level rise, people become more vulnerable. Hurricane Matthew has recently demonstrated the risks - but mitigating mega-storms involves a wide range of actors and concrete measures.



Hurricane Matthew especially ravaged seaside neighborhoods in Haiti

Schwarze pointed to land use planning as a major preventative strategy.

"In many countries, there is push for building codes for earthquakes - but not for hurricanes," Villagrán pointed out.

Schwarze believes reducing risk needs to be brought into [international climate change negotiations](#). The risk of flooding in particular has been largely neglected, and must be included

in vulnerability policies, he said.

Spider has been working with satellite information to help reduce risk. Among other things, satellite imagery helps in determining urban growth to avoid risky settlements, identifying which areas could be prone to disasters, and understanding and forecasting future impacts.

However, in countries like Haiti - with high political unrest and extremely high poverty (almost a quarter of its population lives below the national extreme poverty line) - a long-term campaign for risk reduction still seems far off.

"When all the attention is on political and economic problems, it is hard to start talking about disaster risk reduction," Villagrán said.

"We need to raise the level of priority of risk reduction if we want to stop [the worst impacts from] disasters."

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Disease, hunger loom in storm-ravaged Haiti

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