***Floods and Drought***

One of the physical consequences of a warmer atmosphere is an increased capacity to hold moisture. According to the Clausius-Clapeyron relation, the amount of water vapor that can be stored in the atmosphere increases rapidly with temperature. A warmer planet is also most likely a wetter planet, as more evaporation can occur ([11](http://www.climate.org/topics/extreme-weather/index.html#xi)).

An increase in the frequency or intensity of floods would be catastrophic in many low-lying places around the world. Asian countries are particularly at risk, as low-lying areas (like river deltas and small islands) are densely populated. In Bangladesh alone, over 17 million people live at an elevation of less than 3 ft (1 m) above sea level, and millions more inhabit the flat banks of the Ganges and Brahmaputra Rivers ([1](http://www.climate.org/topics/extreme-weather/index.html#i)). Another consideration is that poorer countries like Bangladesh do not have the financial resources to relocate their citizens to lower risk areas- nor are they able to create protective barriers ([12](http://www.climate.org/topics/extreme-weather/index.html#xii)). And while an obvious impact of flooding is its ability to displace millions of people, there is also the problem of maintaining a clean water supply. Floodwaters can contaminate drinking water, and sea level rise can lead to the contamination of private wells, leading to catastrophic results ([13](http://www.climate.org/topics/extreme-weather/index.html#xiii)).

The possibility for major flooding events is not just limited to Asian countries. The Organization for Economic Co-Operation and Development (which is an international organization) recently announced the 10 cities most vulnerable to flooding. Six of the 10 are in Asia: Mumbai, Shanghai, Ho Chi Minh City, Calcutta, Osaka, and Guangzhou. The other four, however, are in the United States: New York City, Miami, Alexandria, and New Orleans. All are coastal, low-lying, and densely populated ([12](http://www.climate.org/topics/extreme-weather/index.html#xii)).

While flooding is generally considered to be of greater concern for poorer, developing countries, wealthier locations face their own set of problems. In the U.S., for example, waterfront real estate is highly desirable. Wetlands and coastal areas like barrier islands help protect the mainland from flooding and storm surges by acting as a buffer. As more building occurs in these areas, this natural buffer disappears, leaving the homes and businesses at risk. As long as people continue to build in these at-risk areas, flooding will continue to be a major problem ([12](http://www.climate.org/topics/extreme-weather/index.html#xii)).

While average global rainfall is predicted to increase with climate change, not every location on the planet would experience greater rainfall. Evaporation and precipitation occur at different places, and while wet regions could receive even more rainfall if the planet warms, drier regions may experience even more acute shortages of water as evaporation is accelerated in those areas ([1](http://www.climate.org/topics/extreme-weather/index.html#i)). The Sahel, for example, has become drier over the past several decades, accelerating desertification and placing an even greater premium on already-stretched water supplies. According to the WMO, the western United States and Mexico, the Mediterranean basin, northern China, Southern Africa, Australia, and parts of South America are other regions highly likely to experience harsh drought conditions in the future ([9](http://www.climate.org/topics/extreme-weather/index.html#ix)).

As research continues into the effects of global climate change on extreme weather, it is important to consider the human and economic toll of extreme weather events. A potential increase in frequency or intensity of these events is another strong reason why we must take action to counteract global climate change.