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### **Yet More Proof of Climate Change**

By Zack Gross

The huge rainstorms and tornadoes that have hit Manitoba this summer are just one indication of what is going on around the world in the early 21st century. The extreme heat and humidity that we have experienced in July is also just part of a global phenomenon. Not that rain, heat and humidity aren't a part of life on this planet. It's just that these factors are increasing - and appearing in unusual places.

Scientists have recently been creating computer models to track and predict past, current and future weather patterns. This week's Nature magazine publishes a story on their efforts. In brief, trends examined back to 1925, as our planet warms from industrialization, indicate that the world's driest regions will continue to heat up and dry up (partly a factor of wind, as well), while Earth's wetter regions, such as the Amazon and other equatorial regions, will get even wetter.

Europe, Greenland, Russia and Canada can expect more rain and snow, although increased average temperatures will mean that ultimately the arctic ice cover will continue to melt. A Duke (North Carolina) University co-author of this study explains that "a warmer globe means more water vapour in the atmosphere, which increases potential for rainfall." She believes that computer models are still underestimating the magnitude of the problem and is working on better methodologies. Other factors to be explored include diminishing forests, increasing cloud cover and changing wind patterns.

Great Britain's summer has been a washout, with at least 350,000 citizens affected. BBC meteorologists explain that, while no one event can be chalked up to global warming, the trend is toward increased risk of extreme weather events. (The odd observer still holds out, calling the whole thing "bad luck".) A parallel example is smoking. A particular case of lung cancer may or may not be directly attributable to smoking, but smoking in general has been proven to significantly increase lung cancer in any population.

Another study shows that as the global warming trend continues, instances of very high summer temperatures will increase as well. New York City, one of the largest urban centres in the world, in past years might very occasionally achieve a high of 95 degrees Fahrenheit or better. Scientists are following the upward trend in New York as temperatures of 100 become monthly and then, on average, weekly summertime occurrences.

Even with the curbing of greenhouse gases emissions, this trend will take much of the current century to slow, stop and reverse.

There were severe floods in Britain last in 1953 and summers have generally been moderate, thanks to the predictable and benevolent behaviour of the jet stream, but this is changing. Some other parts of the European continent, in the northern half, have also experienced excessive rainfall and flooding in recent times, while the South has struggled with killing heat, including close to 50 degrees Celsius in Greece this month. Says another scientist: “By our greenhouse gas emissions, we have loaded the dice toward higher temperatures and increased rainfall in the Northern Hemisphere.”

In the so-called “developed world,” while weather disasters are certainly not welcome, we have the financial and technological resources to deal with the fall-out from global warming. When flooding hits Britain or Germany or Canada, we have disaster response blueprints, strong infrastructure such as roads and communications, and medical care to alleviate most suffering. This is not the case in the poorest parts of our planet where droughts, floods, crop failures and new disease outbreaks will devastate already at-risk populations.

This past year, usually drought-prone areas of Kenya, Somalia and Ethiopia in East Africa have had record rainfall, adding flooding to existing problems such as regional conflict and extreme poverty. Following along with the flooding have been renewed problems with dengue fever and malaria, while washed out infrastructure has made the transport of food to affected regions almost impossible. Homelessness, injury and death are more of a risk, and more of a reality, in these situations than they are in wealthy parts of the world.

Scientific American magazine, on its July 24 web site, misquoting the Broadway musical play “My Fair Lady,” asserts that “the rain in Spain no longer falls mainly on the plain.” While scientific efforts to track new rainfall and temperature patterns will benefit our ability to predict and deal with extreme weather, only our immediate efforts to cut back on greenhouse gas emissions will lead to reversing the threat and effects of global warming. Otherwise, the rainstorms and heat waves that have been once-in-a-season wonders will become commonplace and increasingly costly and deadly.

*Zack Gross is program coordinator at the Manitoba Council for International Co-operation (MCIC), a coalition of 36 international development organizations active in our province.*