

## **Matter of degree: Temperature goal an issue in climate talks**

St. Louis Post-Dispatch (Missouri)

December 5, 2015 Saturday

FINAL EDITION

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**Section:** NEWS; Pg. A8

**Length:** 916 words

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### **Body**

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PARIS • In climate math, the difference between 1.5 and 2 degrees is much greater than 0.5.

Small nations say that for them, that half-degree could mean the difference between life and death. For larger nations, the question is what's realistic and what's not when it comes to limiting global warming.

The broader issue is how much warming is too much. In 2010, international negotiators formally adopted a goal of limiting warming to 2 degrees Celsius (3.6 degrees Fahrenheit) over pre-industrial times; Earth has already warmed nearly 1 degree.

The warming goal is what experts call a guardrail, and it has the potential to derail the climate talks going on in Paris if negotiators can't agree on a number.

Small island nations - such as the Marshall Islands, Tuvalu and St. Lucia - and some other countries are pushing 1.5 because they see it as an issue of survival. They talk about sea level rise inundating cities, salt water killing off crops and more dangerous storms wiping out cities.

"It's a fight that really should not be focused on numbers, 1.5, 2, 2.5," said James Fletcher, St. Lucia's minister for sustainable development, energy, science and technology. "It should be focused on lives. We're not fighting for numbers, we're fighting for lives."

Climate scientists say both numbers are a bit arbitrary, but keeping warming to 1.5 degrees could increase the chance of survival for coral reefs, slow the rise in the number of ever-increasing severe weather disasters and help keep the planet from hitting dreaded but so far unseen tipping points of irreversible environmental damage.

"There is no such thing as a guardrail where we are free from all the impacts of climate change; we've already seen climate change and it's widespread," said Chris Field, a Carnegie Institution scientist who headed an international scientific assessment of climate impacts two years ago.

For some countries, keeping warming to 1.5 degrees may require steep and painful cuts in carbon dioxide emissions from the burning of coal, oil and gas. But United Nations climate chief Christiana Figueres and climate talks president Laurent Fabius, the French foreign minister, were optimistic about compromise. So far, international negotiators trying to broker a deal say it's a challenge they think they can handle.

There are many issues in the talks, which continue through mid-December. Climate negotiators are trying to figure out how much countries must reduce carbon dioxide emissions to keep the planet from heating up to dangerous levels; how to make sure countries do what they promise; and who pays for it all. But how much countries cut and pay could depend in part on the planetary goal.

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"Whether the text will also take into account a very justifiable request from the most vulnerable countries to improve on those efforts, it remains to be seen how that is going to be handled," Figueres said in an interview. "It wouldn't surprise me if there is a recognition of the intense vulnerability of some nations."

Fletcher said that based on reports from his negotiators, there would be pushback from some countries on the 1.5 goal.

U.S. chief **climate** negotiator Todd Stern said his delegation had talked with the small islands about their position.

"We haven't landed anywhere yet, but we hear the concerns of those countries and we think those concerns are legitimate," he said.

India's chief **climate** negotiator, Ashok Lavssa, said India believed that the number should be below 2 degrees, but whether it goes all the way to 1.5 is difficult to say.

Fletcher said he could see a compromise by which both goals - 2 and 1.5 - would be listed in whatever pact comes out of the conference and countries would agree to try to hit 1.5 but commit to 2 if they can't.

Then there's the question of whether either goal is attainable.

Andrew Jones, co-director of **Climate** Interactive, has run the numbers on computer models that simulate how much the world warms based on how much carbon pollution is spewed.

He calls achieving a 2-degree goal difficult and a 1.5-degree goal "very difficult." His numbers show that current pledges by nations would only limit warming to 3.5 degrees, down from the current trajectory of 4.5 degrees if nations continue producing emissions as they have been.

For example, to do its part in keeping warming to 2 degrees, the U.S. must cut emissions by 4.1 percent a year by 2030, but to get to 1.5, it must cut emissions by 6.2 percent a year. Those cuts would need to increase even more between 2030 and 2050. The fastest a country has ever cut carbon emissions was about 4 percent a year during the 1970s oil crisis, when France switched heavily to nuclear power.

But Jones and MIT professor John Sterman said people shouldn't get bogged down in the numbers right now. They said it's like driving from New York City to San Francisco, arguing about where you are going to park when you get there when you are still only on the East Coast.

Field said it wa's a bit of an academic question, especially because the emissions already spewed stay around for so long the world is nearly already committed to 1.5 degrees of warming.

Others, such as James Hansen, a former NASA **climate** chief turned activist, said 2 degrees was too much warming, calling it "a crazy target to have; you cannot say that's a safe guardrail." Hansen, often considered the godfather of global warming science said that "1.5 is certainly less dangerous than 2 degrees; I wouldn't even want to characterize that as a guardrail."

## Graphic

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Anne Hidalgo , Mayor of Paris, center, poses for a group picture with Michael R. Bloomberg U.N. Secretary General's Special Envoy for Cities and **Climate Change**, and Alain Juppe, Mayor of Bordeaux, top left, and Fatimatou Mint Abdel Malick mayor of Tervagh-Zeina, Mauritania, left, along with mayors from various cities during a meeting with Mayors at Paris city Hall as part of the COP21, United Nations **Climate Change** Conference, in Paris, Friday, Dec. 4, 2015. (AP Photo/Francois Mori) Representatives of NGOs wear elephant masks and hold banner at the COP21, United Nations **Climate Change** Conference, in Le Bourget north of Paris, Friday, Dec. 4,

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2015. The actives wants negotiators aviation and shipping emissions include in the final accord.(AP PhotoMichel Euler) Former US Vice President Al Gore walk at the COP21, United Nations **Climate Change** Conference, in Le Bourget north of Paris, Friday, Dec. 4, 2015. (AP Photo. French President Francois Hollande is encouraging mayors of the world to get involved in fighting **climate change** and praising those that are already setting an example with low-emission buildings and public transport policies. (AP PhotoMichel Euler) Leonardo DiCaprio addresses to the audience during a meeting with Mayors to push for local actions to fight **climate change** at Paris city Hall on the margins of the COP21, as part of the COP21, United Nations **Climate Change** Conference, in Paris, Friday, Dec. 4, 2015. (AP Photo/Francois Mori) Former New York City Mayor Michael Bloomberg, right, gestures as he speaks during a panel discussion on "**Climate Change** and Financial mMarkets"at the COP21, United Nations **Climate Change** Conference, in Le Bourget north of Paris, Friday, Dec. 4, 2015. (AP Photo. (AP PhotoMichel Euler) A representative of a NGO display a banner in front of a reproduction of the Eiffel tower at the COP21, United Nations **Climate Change** Conference, in Le Bourget north of Paris, Friday, Dec. 4, 2015. Many activists and negotiators from small island nations want a final **climate** accord to aim at a keeping global warming to 1.5 degrees worldwide by 2100, instead of 2 degrees. (AP PhotoMichel Euler) Paris Mayor Anne Hidalgo poses during a meeting with Mayors to push for local actions to fight **climate change** at Paris city Hall on the margins of the COP21, United Nations **Climate Change** Conference, in Paris, Friday, Dec. 3, 2015. The French president Francois Hollande said that "no region in the world could feel protected of **climate** disorders" and encouraged city mayors to get involved in fighting **climate change**. (AP Photo/Francois Mori)

## Classification

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**Language:** ENGLISH

**Publication-Type:** Newspaper

**Subject:** CLIMATOLOGY (90%); EARTH & ATMOSPHERIC SCIENCE (90%); ENVIRONMENT & NATURAL RESOURCES (90%); PUBLIC POLICY (90%); **CLIMATE CHANGE** (89%); EMISSIONS (89%); GREENHOUSE GASES (89%); INTERNATIONAL RELATIONS (89%); ISLANDS & REEFS (89%); NEGATIVE ENVIRONMENTAL NEWS (89%); SCIENCE & TECHNOLOGY (89%); GLOBAL WARMING (78%); GOVERNMENT ADVISORS & MINISTERS (78%); INTERNATIONAL RELATIONS & NATIONAL SECURITY (78%); METEOROLOGY (78%); POLLUTION & ENVIRONMENTAL IMPACTS (78%); SEVERE WEATHER (78%); STATE DEPARTMENTS & FOREIGN SERVICES (78%); SUSTAINABLE DEVELOPMENT (78%); WEATHER (78%); NEGATIVE NEWS (77%); SUSTAINABILITY (73%); ENERGY DEPARTMENTS (70%); UNITED NATIONS (65%); business (%); general news (%); science (%); environmental policy (%); **climate** (%); environmental concerns (%); international relations (%); environment (%); environment and nature (%); government policy (%); government and politics (%); atmospheric science (%); earth science (%); air quality (%)

**Industry:** EMISSIONS (89%); GLOBAL WARMING (78%); SUSTAINABLE DEVELOPMENT (78%); ENERGY DEPARTMENTS (70%)

**Geographic:** PARIS, FRANCE (90%); SAINT LUCIA (92%); FRANCE (90%); TUVALU (79%)

**Load-Date:** December 6, 2015