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Shutting off Tap Water: Revenge of the Rainforest

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Global Research, March 02, 2015
Dissident Voice 27 February 2015

Region: Latin America & Caribbean
Theme: Environment

Imagine this scenario: The following is a Public Service Announcement by the New York Department of Environmental Conservation, Division of Water, July 4, 2015: Because of low water levels in state reservoirs, the Division of Water proclaims a statewide water-rationing program. Starting next month, on August 1st, 2015, water service will turn off at 1:00 P.M. on a daily basis for an indeterminate period of time. Service will return the following morning.

Now, imagine a city the size of the State of New York with its 20 million people subjected to the same water-rationing plan. As it happens, São Paulo, capital city of Brazil, home to 20 million, is such a city. The water is turned off every day at 1:00 P.M., as reported by Donna Bowater.[1]

Brazil contains an estimated 12% of the world's fresh water, but São Paulo is running dry.

Fatally, the city's Cantareira Water Reservoir (water resource for 6.2 million of the city's 20 million) is down to 6% of capacity, yes, six percent! The city's other reservoirs are also dangerously low. Perilously, São Paulo's days of water supply are numbered.

What's the Problem?

Deforestation, the nearly complete disappearance of the Atlantic Forest and continuing deforestation of the Amazon, that's the problem. Forests have an innate ability to import moisture and to cool down and to favor rain, which is what makes "regional climates" so unique.

According to one of Brazil's leading earth scientist and climatologist, Dr. Antonio Nobre, Earth System Science Centre and Chief Science Advisor, National Institute for Research in the Amazon, Brazil: "There is a hot dry air mass sitting down here [São Paulo] like an elephant and nothing can move it… If deforestation in the Amazon continues, São Paulo will probably dry up."[2]

According to Dr. Nobre: "Vegetation-climate equilibrium is teetering on the brink of the abyss. If it tips, the Amazon will start to become a much drier savanna, with calamitous consequences."[3]

Deforestation Alters the Climate

"Studies more than 20 years ago predicted what is happening with lowering rainfall. Amazon deforestation is altering climate. It is no longer about models. It is about observation. The connection with the event in São Paulo is important because finally people are paying

attention."[3]

São Paulo is Brazil's richest state as well as its principal economic region. Sorrowfully, it may "dry up." It could really truly happen because it's already mostly there, right now, as of today.

Where will its 20 million inhabitants go?

Nobody knows!

The Atlantic Forest stretches along the eastern coastline of the country. A few hundred years ago, the forest was twice the size of Texas. Today, it is maybe 15% of its former self and what remains is highly fragmented. The forest harbors 5% of the world's vertebrates and 8% of Earth's plants. Illegal logging, land conversion to pasture, and expansion of urban areas have put extreme stress on the Atlantic Forest. The same holds true for the giant Amazon rainforest.

Brazil holds one-third of the world's remaining rainforests. In the past, deforestation was the result of poor subsistence farmers, but times change. Today, large landowners and corporate interests have cleared the rainforest at an unprecedented rate. At the current rate, the Amazon rainforest will be further reduced by 40% by 2030.

Rainforests are the oldest ecosystem on earth and arguably one of the most critical resources for sustainability of life, dubbed "the lungs of the planet."

National Geographic magazine summarizes the plight of rainforests in a recent article, stating: "In the time it takes to read this article, an area of Brazil's rainforest larger than 200 football fields will have been destroyed. The market forces of globalization are invading the Amazon."[4]

Yes, within 20 minutes, only 20, the Amazon rainforest loses the equivalent of 200 football fields. Americans connect with football. It is one of the biggest revenue-producing sports in history. And, that's not all; football fields provide a good descriptive tool of dimensions. In fact, 200 football fields are equivalent to the space required for 1,000 stand alone single-family homes, which means the Amazon rainforest loses equivalent to 72,000 stand alone single-family homes, or a small city, per day, everyday, gone forever. That's a lot of rainforest gone day-in day-out, which ironically provides timber for building houses, but, in point of fact, most of it is burned away. Poof it's gone, big puffs of smoke into the atmosphere.

> During the past 40 years, close to 20 percent of the Amazon rainforest has been cut down—more than in all the previous 450 years since European colonization began… Scientists fear that an additional 20 percent of the trees will be lost over the next two decades into the atmosphere. If that happens, the forest's ecology will begin to unravel. In fact, the Amazon produces half its own rainfall through the moisture it releases into the atmosphere. Eliminate enough of that rain through clearing, and the remaining trees dry out and die.[4]

Rainforests are the World's Most Invaluable Natural Resource

Nature at work: (1) The Amazon produces half of its own rainfall and most of the rain south of the Amazon and east of the Andes, (2) rainforests sequester carbon by holding and absorbing carbon dioxide, thus, controlling global warming as it actually cleanses the atmosphere. (3) rainforests maintain remarkable panoply of life with species not found anywhere else and provide medicinal products, like cancer treatment, and (4) these spectacular forests produce 20% of the planet's oxygen. Every fifth breath murmurs "thank you rainforests."

Rainforests cover less than 2% of Earth's total surface area but are home to 50% of the plants and animals. That's a lot of "bang for the buck." Moreover, critical for survival, the rainforests act as the world's thermostat by regulating temperatures and weather patterns, and they are absolutely necessary in maintaining Earth's supply of drinking and fresh water. For confirmation of the significance of that "necessity," ask the residents of São Paulo.

As for the size of the world's rainforests, "the original untouched resource of six million square miles of rainforests" has already been chopped down by 60%. Only 2.4 million square miles remain today.

Regrettably, according to *The Guardian*: "Forest clearance has accelerated under Brazil's president, Dilma Rousseff [since 2011] after efforts to protect the Amazon were weakened… satellite data indicated a 190% surge in deforestation in August and September [2014]."

Is the Problem Bigger than Solutions?

"A paradox of chance," claims Dr. Antonio Nobre: "Remarkably, there is a quadrangle of land in South America that should be desert. It's on line with the deserts, but it is not. It's the Amazon rainforest."

Based upon studies of the Amazon's impact on climate, Dr. Antonio Nobre offers a solution to climate change/global warming. Rebuild Forests. Yes, rebuild 'em: "We can save planet Earth. I'm not talking about only the Amazon. The Amazon teaches us a lesson on how pristine nature works… We can save other areas, including deserts, if we could establish forests in those areas, we can reverse climate change, including global warming."[5]

For example, fighting back. China is building a giant green wall, a tree belt, hoping to stop the Kubuqi Desert from spreading east along the front line of the huge Chinese Dust Bowl, the world's largest dust bowl. Fifty years ago, portions of this same eastern desert area were grasslands, growing crops, raising cattle and sheep. Today, windstorms from the Kubuqi send plumes all the way across the Pacific to the U.S. West Coast.

Ergo, proof positive people do not need to stand by idly twiddling thumbs, watching human-caused climate change ravage countryside. Things can be done!

However, as for China, it may already be too late: "Northwestern China is on the verge of a massive ecological meltdown."[6]

Thus, the most provocative question surrounding the global warming issue is: When is the problem bigger than solutions?

The global warming/climate change issue is much, much deeper and considerably more robust than this short essay depicts. It is a gargantuan monster that is likely already out of

control with CO_2 in the atmosphere at levels flashing warning signals going back hundreds of thousands of years, frightening *real scientists* but not enough to frighten the U.S. Congress into instituting a nationwide renewables initiative. In fact, Congress is stiff and lifeless.

As it goes, the overriding climate change quandary consists of (1) "fossil fuels ruling the world," (2) COP's (Conference of Parties aka; UN Framework Convention on Climate Change) ineffective endless meetings, ho-hum, and (3) frankly, most of the people in the world don't give a damn. End of story.

Meanwhile, with deforestation in the Amazon once again accelerating, hapless São Paulo may morph into a real life version of *Road Warrior* (Warner Bros. 1981), a dusty, dirty vision of the future where resources are hard to find and decent people turn nasty as desperate marauding groups battle for survival in the desert.

Maybe that'll wake people up!

Postscript: To access a video about the Amazon by Dr. Antonio Nobre, click here.

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Notes:

1. São Paulo correspondent, *Taps Run Dry in Brazil's Biggest City as Drought Bites, The Telegraph*, February 23, 2015. [↩]

2. Wyre Davies, Rio de Janeiro correspondent, Brazil Drought: São Paulo Sleepwalking Into Water Crisis, BBC News, November 7, 2014. [↩]

3. Jonathan Watts in Rio Janeiro, Amazon Rainforest Losing Ability to Regulate Climate, Scientist Warns, *The Guardian*, October 31, 2014. [↩] [↩]

4. Scott Wallace, "Last of the Amazon," *National Geographic*, March 2015. [↩] [↩]

5. Antonio Donato Nobre, "The Magic of the Amazon: A River That Flows Invisibly All Around Us", *TEDxAmazonia*, November 2010. [↩]

6. Lester R. Brown, "The World's Biggest Dust Bowl: China is Losing the War on Advancing Deserts", *The New York Times*, August 13, 2013. [↩]

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