

August 22, 2011

HUFF POST GREEN

THE INTERNET NEWSPAPER: NEWS BLOGS VIDEO COMMUNITY

Like 414K Follow CONNECT

- FRONT PAGE
 - POLITICS
 - BUSINESS
 - ENTERTAINMENT
 - TECH MEDIA
 - LIFE & STYLE
 - CULTURE
 - COMEDY
 - HEALTHY LIVING
 - WOMEN
 - LOCAL
 - MORE
- GREEN ENERGY CLIMATE CHANGE ANIMALS GREEN TECH POLITICS FOOD



'WE DON'T NEED YOUR SYMPATHY ...



PHOTOS: Vacation In A Swanky ... Space Pod Hotel



The Most Intense Time-Lapse Ever



Peter Bosshard

GET UPDATES FROM PETER BOSSHARD

Policy Director, International Rivers

- FAN
- RSS
- EMAIL
- twitter
- Like 5

How Dams Can Kick Up a Storm and Change Our Climate

Posted: 06/ 8/11 12:44 PM ET

React > Inspiring Enlightening Infuriating Scary Helpful Amazing Innovative Adorable

Follow > Climate Change, Green Energy, Drought, Floods, Carbon Dioxide, Green News, Three Gorges Dam, Yangtze River, Dams, Methane, Rivers, Storms, Green News

SHARE THIS STORY

Like You like this. Admin Page Insights Error

5 19 1 0

share tweet email +1

Get Green Alerts Sign Up

Submit this story

Only 140 kilometers from our Berkeley office, the **Folsom Dam** towers 100 meter high over the American River. When it was built in the 1950s, the project was supposed to withstand the most severe flood in 250 years. Yet after it was completed, strong floods suddenly became more frequent and overtopped the dam at several instances. Until a safety upgrade goes forward, 440,000 people in the downstream area are exposed to the highest level of flood risk in the US. Scientists have now **found evidence** that the project's problem may be partly of its own making, and that dams can in fact kick up a storm.

We have known for a long time that dams can **influence local rainfalls**. Humidity evaporates from reservoirs and

ADVERTISEMENT

PHOTO GALLERIES



WATCH: Huge Waterspout Becomes



The Week's Coolest And Cutest Animal



irrigated fields and gets recycled as rainfall. Dams and levees can reduce evaporation and rainfalls when they drain wetlands and open up woodlands for deforestation. The Niger Delta in West Africa is **an example**. In September, the delta's wetlands extend to 30,000 square kilometers -- roughly the size of Belgium -- and feed rainfalls over a much larger region. Yet existing and proposed dams on the Niger would reduce the river's flow by almost half. Christopher Taylor of the Centre for Ecology and Hydrology **warns** that this could "significantly reduce" the seasonal window when the delta induces rainfalls.

This spring, a devastating drought crippled large part of Central China. Local people maintain that droughts have become more frequent and severe since the massive Three Gorges Dam on the Yangtze River was completed in 2003. If you look at the immediate impacts, this does not appear to be the case. Chinese researchers **found** that after 2003 rainfalls decreased somewhat south of the reservoir, and increased significantly about 100 kilometers to the north.

Yet the Three Gorges Dam may have more significant indirect impacts. During the flood season, the Yangtze used to expand the size of the **Dongting** and **Poyang** lakes from about 4,000 to 24,000 square kilometers. By storing flood water for electricity generation, the Three Gorges Dam is now greatly diminishing the seasonal expansion of the two flood basins, which had already been dwindling due to land reclamation. During this year's drought, the majestic Dongting Lake -- the home of the famous Chinese dragon boat races -- turned into a sad mudflat with isolated pools of water.

The hydropower operators released extra water from the Three Gorges Dam in late May, **claiming** that they thus contributed to the drought relief. This is disingenuous: without the dam, much more water would have replenished the flood basins naturally. Research on wetlands and climate around the world suggests that chocking off the Yangtze's flood basins is likely to have significant negative impacts on rainfalls that cannot be compensated by evaporation from the Three Gorges reservoir.

Reservoirs don't only influence rainfall and droughts in their vicinity. They also contribute to climate change by **emitting greenhouse gases**. Rotting organic matter from the vegetation flooded when the reservoir is filled releases methane and carbon dioxide. The plankton and plants that live in the reservoir, the detritus washed down from the watershed, and the seasonal flooding of plants along the reservoir fringes ensure that emissions continue for the lifetime of a reservoir. Greenhouse gas emissions are particularly high from shallow tropical reservoirs. Philip Fearnside of the National Institute for Research on the Amazon **calculated** that three hydropower projects in Brazil emit greenhouse gases approximately twice as high as the emissions of modern coal-fired power plants with the same energy output.

Ivan Lima of Brazil's National Institute for Space Research estimated the total methane emissions from large dams at **104 million tons per year**. This is around 4% of human-made climate change - equal to the contribution of the civil aviation industry. Just as flying is not a sustainable form of transport, hydropower can not be considered a renewable form of energy.

Three researchers from Tennessee Technological University and the University of Colorado have now made the latest contribution to the debate on dams and climate change. By overlaying a databank of large reservoirs with meteorological stations all around the world, they found that dam building has **influenced the severity of storms**. In Southern Africa and Southern Europe, dams "appeared to have increased extreme precipitation by as much as 20% during the last century." A smaller increase occurred in India and Central Asia.

In a separate study, a group of scientists around Faisal Hossain and Roger Pielke Sr. found "the possibility of storm intensification in impounded basins of the Mediterranean and arid climates of the United States." This region includes the Folsom Dam on the American River. **Comments Hossain**: "Now, our results give us a better idea of which dams are most likely to gradually change local climate and what that means for managing those reservoirs as time passes."

Climate change puts dam builders **in a bind**. Changing rainfall patterns make it difficult to assess future streamflows, while more frequent storms can make dams unsafe. The US government has approved \$1 billion for a safety upgrade of the Folsom Dam. This is a price which many governments in poor countries cannot afford. They need to diversify their energy sectors and build decentralized projects which are more resilient to the vagaries of climate change than bulky large dams.

Follow Peter Bosshard on Twitter: www.twitter.com/PeterBosshard

Sponsored Links

[57 Year Old Mom Looks 27](#)

Huffington Post Readers: Mom Reveals \$5 Wrinkle Trick Angering Doctors

PHOTOS:
Canadian Tar
Sands And The

PHOTOS: Tar
Sands Action
Protestors

HUFFPOST SOCIAL NEWS

FOLLOW US





MOST POPULAR ON HUFFPOST ◀ 1 of 2 ▶

 PHOTO: Kim's Wedding Day
[f Like](#) 93

 Photographer Refuses to Take Senior Portraits For 'Ugly' Teen Bullies
[f Like](#) 25K

 'West Memphis Three' Free After Serving 17 Years
[f Recommend](#) 27K

 AOL TV: Dan Gives Rooftop a Permanent Tattoo Prank on 'LA Ink' (VIDEO)
[f Like](#) 259

 Engadget: Let the liquidation begin -- HP's 16GB TouchPad on sale for \$99
[f Like](#) 7K


 Why I Defend Kim Kardashian
[f Like](#)

 **Gregory Curley** Italy's Amalfi Coast: Eat, Pray, Awesome (PHOTOS)
[f Like](#) 715

 AOL Travel News: Sleeping Bear Dunes National Lakeshore is Most Beautiful Place in America
[f Like](#) 2K

 Shelterpop: What The Location Of Your Mess Says About You (And How To Fix It)
[f Like](#) 2K

DON'T MISS HUFFPOST BLOGGERS

 Mohamed A. El-Erian
[Why Washington Urgently Needs to Break America's Negative Feedback Loop](#)
Ricky Gervais
Show Biz

[Daily-Lifestyles.com](#)

Obama's Economic Crash

Unemployment hits 50% and inflation soars 100%. Watch Video
[www.newsmax.com](#)

Penny Stock Jumping 3000%

Join our 100% Free Newsletter & get Penny Stock Picks that jump high!
[www.AwesomePennyStocks.com](#)

Man "Cheats" Credit Score

He "Sneaked" 183 Points Onto His Credit Score Using This 1 Easy Tip
[www.TheCreditSolutionProgram.com](#)

[Buy a link here](#)



Sponsored Links

57 Year Old Mom Looks 27

Huffington Post Readers: Mom Reveals \$5 Wrinkle Trick Angering Doctors
[Daily-Lifestyles.com](#)

Obama's Economic Crash

Unemployment hits 50% and inflation soars 100%. Watch Video
[www.newsmax.com](#)

Penny Stock Jumping 3000%

Join our 100% Free Newsletter & get Penny Stock Picks that jump high!
[www.AwesomePennyStocks.com](#)

[Buy a link here](#)

Related News On Huffington Post:



China Floods Kill 52, Force Over 100,000 To Evacuate

BEIJING (Reuters) – Heavy rain drenched a drought-ravaged swathe of southern and eastern China, killing 52 people and forcing more than 100,000 to evacuate,...



China Carbolic Acid Spill In Xin'an River Knocks Out Water To Half Million

SHANGHAI -- A toxic chemical spilled into a river that supplies drinking water to the scenic city of Hangzhou in eastern China, knocking out supplies...



Missouri River Flooding: Hamburg, Iowa Could Be Left Under Water If Fixes Fail (VIDEO)

HAMBURG, Iowa (AP) -- The swollen Missouri River is threatening to inundate a small southwest Iowa town where officials are piling massive sandbags on a...



Residents In The West Prepare For Floods With Sandbags, National Guard

GRAND COULEE DAM, Wash. -- The giant concrete dams of the Pacific Northwest are overflowing with water. Wyoming has deployed National Guard troops to pile...

More News Posts: [« First](#) [Prev](#) [1](#) [2](#) [Next](#) [Last »](#)

Read more from Huffington Post bloggers:



Lawrence Bender: Congress: Stop Denying *An Inconvenient Truth*

Last year, Congress debated, dawdled and dithered. This year is more of the same. The bottom line remains that Congress has still not passed legislation to curb carbon pollution and boost renewable energy solutions.



Lori Pottinger: Extreme Weather Makeover: The Dam Effect

Big dams are, in effect, experimental technology. Those who design, build and operate them can't predict with any certainty the many serious impacts they will have on life-giving river systems.

[More in Green...](#)

TimeFest 2011: The Most Intense Timelapse Ever...

Antarctica's Ice Flow Fully Mapped For The...

Greenhouse Gas Regulations And Job Growth Linked...

What Parents Can Do To Stop School...

Comments

11

Pending Comments

0

[View FAQ](#)

Comments are closed for this entry

[View All](#)

⌵ [Recency](#) | [Popularity](#)

Bullitt08

57 Fans

02:05 AM on 6/10/2011

The planet is overpopulated by people by an order of magnitude or more.

Human population growth rates are the single biggest threat to the planet.

This is by far the biggest problem on the planet and it MUST be addressed first.

[Permalink](#) | [Share it](#)



HUFFPOST SUPER USER

Overtone *See bio on the Aesop Institute website*

256 Fans



11:15 AM on 6/09/2011

NEW TECHNOLOGY CAN HARNESS ELECTRICITY FROM RIVERS WITHOUT DAMS!

A little known breakthrough is past Proof of Concept and may soon be prototyped with potential early applications in the Hudson River and California.

Feel free to contact me for additional information.

[Permalink](#) | [Share it](#)

HUFFPOST SUPER USER

b525

204 Fans



06:31 AM on 6/09/2011

The building of hydro-power dams in Africa and other tropical countries has been shown to massively increase malaria and other deadly water born parasites by reducing, warming and stagnating downstream river water flows for hundreds of miles. This stagnant river water is perfect habitat for malarial mosquito larva and parasites.

There are at least three examples of this in Africa alone:

-the Akasombo Dam in Ghana created dramatic increases in malaria and water bourne parasites after building of the dam on the Volta River there in the 1960's. This dam flooded the land in Ghana with a 200+ mile long dam reservoir which can be seen from space. (called "Lake" Volta). Many ancient riverside villages and farms were permanently drowned under dam reservoir water.

Malaria and parasite rates are sky-high there even today, especially in children. Ghana is still one of the most impoverished nations on earth despite having one of the largest dams in Africa. (I believe the dam was built by the Alcoa company to smelt aluminum...one aluminum smelter can use as much electricity as a fairly large city).

-the Aswan Dam on the Nile River in southern Egypt caused similiar spikes in malaria and parasites.

-also the Manatali Dam in Senegal

After these dams are built downstream river fisheries are usually destroyed because most river fish cannot live and breed in warm/stagnant river water.....even in the tropics.

I'm sure there are more examples of this phenomenon in the tropics.

[Permalink](#) | [Share it](#)

FreeHat *Really?*

81 Fans



07:03 PM on 6/08/2011

"Changing rainfall patterns make it difficult to assess future streamflows,"

When have rain patterns been predictable. Tie into c02 please. No peer reviewed papers? Well, then don't make the assertion.

[Permalink](#) | [Share it](#)

anon1mat0

1 Fans

01:22 PM on 6/08/2011

"Just as flying is not a sustainable form of transport, hydropower can not be considered a renewable form of energy."

These are the kind of unqualified statements that destroy any value from the argument made. Hydropower IS renewable, regardless of methane emissions or other problems depending on where the dam is made and how large it is.

If there are valid arguments to avoid hydropower megaprojects, it is disingenuous to think that all dams should be dismantled. All forms of energy production have environmental downsides including wind and solar, the trick is to understand the problems and minimize them, but absolute statements don't help the cause, and promote the idea that environmentalism is by definition extreme.

[Permalink](#) | [Share it](#)

ubrew12 *that crazy uncle from Amarcord*

359 Fans



01:54 PM on 6/08/2011

Well said. There are no 'environmentally benign' energy sources (although solar comes close). It's important to understand the risks and plan appropriately. The idea that we can construct an energy infrastructure based on price of energy, and price alone, given the many economic and environmental variables that should enter into that equation, is ridiculous. And, yet, that is what we have done. Hence, we select coal, oil, and natural gas, and to H8ll with the consequences. Bad idea.

I plan to be flying, on biofuel, far into the future.

[Permalink](#) | [Share it](#)



HUFFPOST BLOGGER

Peter Bosshard

19 Fans



02:10 PM on 6/08/2011

As you say, all forms of energy generation have downsides, and if planned and built diligently, hydropower projects can be an acceptable source of energy. This doesn't make them renewable though. Greenhouse gas emissions are not the only irreversible impact of dams. As the World Commission on Dams, the Millennium Ecosystem Assessment and the Global Biodiversity Outlook have documented, dams have massive impacts on freshwater ecosystems. Not least due to river fragmentation, freshwater is affected by a much higher loss of species than terrestrial and marine ecosystems. GHG emissions from hydropower are often much lower than from fossil fuels, but I don't see how projects that irreversibly deplete our biodiversity can be considered renewable.

[Permalink](#) | [Share it](#)



cempiremtn

9 Fans

05:49 PM on 6/08/2011

"Irreversibly deplete "OUR" biodiversity"...What an egotistical statement.

First of all, it the "EARTH'S" biodiversity, NOT mans. Man is nothing but a minor player in the scheme of things. "We", think we have so much power to change our environment, yet one small increase or decrease in the sun's output and we are done, period! The sun IS the cause of "Global Warming", and Mars warming, etc. Man has only been on Earth a short time and we have only had time to see minor changes. Mother nature created one of the biggest dams of all time, when it dammed the Grand Canyon, we better file a lawsuit so THAT will not happen again.

You name all these scientists, with their possible results of mans doing, yet I would bet they ALL have income derived by keeping MCGW in the news...Follow The Money...AI Gore,GE,Obama, Just don't STEAL mine, I work too hard for it.

[Permalink](#) | [Share it](#)

There are More Comments on this Thread. [Click Here To See them All](#)

HUFFPOST SUPER USER

lbsaltzman *Permaculture and Sustainability*



384 Fans

09:09 PM on 6/08/2011

Very well stated. Our quest for power has many negative impacts, it is good that you have pointed out the dangers of hydroelectric power.

[Permalink](#) | [Share it](#)

SEARCH

- FRONT PAGE
 - POLITICS**
 - BUSINESS
 - ENTERTAINMENT
 - TECH
 - MEDIA
 - LIFE & STYLE
 - CULTURE
 - COMEDY
 - HEALTHY LIVING
 - WOMEN
 - LOCAL
 - MORE
- GREEN ENERGY CLIMATE CHANGE ANIMALS GREEN TECH POLITICS FOOD

[Advertise](#) | [Log In](#) | [Make HuffPost your Home Page](#) | [RSS](#) | [Careers](#) | [FAQ](#)

[User Agreement](#) | [Privacy](#) | [Comment Policy](#) | [About Us](#) | [Contact Us](#)

Copyright © 2011 TheHuffingtonPost.com, Inc. | "The Huffington Post" is a registered trademark of TheHuffingtonPost.com, Inc. All rights reserved.

Part of AOL Lifestyle