

# California Water and Infrastructure Report

Formerly, the “California Drought (and Flood) Update”



**For October 4, 2018**

**by Patrick Ruckert**

**Published weekly since July, 2014**

**An archive of all these weekly reports can be found at both links below:**

<http://www.californiadroughtupdate.org>

<https://www.facebook.com/CaliforniaDroughtUpdate>

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*“Rather, physical economics is about applying the most advanced scientific discoveries to the production and distribution of goods, to provide an improving standard of living for all people, while at the same time investing in the future, in areas which will lead to the scientific and technological progress needed to provide for the next generations.”*

*From: A Crash is Looming, But a New Bretton Woods Is Within Reach!*

## **A Note To Readers**

With one month to go until the mid-term elections, it is well to be reminded that what is at stake is whether the nation shall have a government that is able to focus on, as our quote above references, real physical economy-- that is science, a space program, infrastructure and real industry. Therefore, since the Democrats, at least for now, have abandoned any semblance of representing the party of Franklin Roosevelt or John Kennedy, they must not be allowed to take over the House of Representatives.

Our feature this week is excerpts from the article published in the September 28, 2018 issue of Executive Intelligence Review, “*A Crash is Looming, But a New Bretton Woods Is Within Reach!*,” which highlights both the danger of a new financial crash and the solution. For it is only if the financial system and all the policies of government focus on real physical economy can not only serious infrastructure be developed and built, but, really, unrelenting chaos be avoided.

## **In this week's report**

October 1 signaled the beginning of a new water year for the state. Ending on September 30, the old year is “marked by hot and dry conditions, except for sporadic significant precipitation.” Thus, the

U.S. Drought Monitor continues to reflect the moderate drought that embraces the entire state.

The Oroville Dam Update includes a “flyover” video and reports on the progress of construction.

Since October is the month in which the state has the most in numbers and generally the most destructive wildfires, two items highlight the topic.

Drilling work is underway at Shasta Dam where federal officials are trying to determine if the dam shall be raised 18 feet to increase the capacity of the largest reservoir in California.

Then we have some excerpts from a serious article on “The Forests: Climate, Pests, Dead Trees and Fires.”

Two articles on the “trade war” focus on the potential of China to invest in building U.S. infrastructure and the impact on farmers.

The Feature this week is excerpts from the article from which our introductory quotation comes.

## **The End of the Water Year and the U.S. Drought Monitor**

### ***California Marks the End of Another Dry Water Year***

By [\*Associated Press\*](#)

October 2, 2018

<https://www.nbclosangeles.com/weather/California-Dry-Summer-Water-Drought-Rain-Weather-494958341.html>

*California has started a new water year with some rain falling or in the immediate forecast after a 12-month span of below-average precipitation.*

*[The Department of Water Resources](#) announced Monday that the just-ended water year was marked by hot and dry conditions except for sporadic significant precipitation.*

*A water year runs from Oct. 1 through Sept. 30.*

*In the year that ended Sunday, the statewide snowpack was just 58 percent of average and much of Southern California ended up with half or less than half of average rainfall. The period was also saw record-breaking wildfires.*

### ***California Marks Another Dry Water Year***

October 1, 2018

Ezra David Romero / Capital Public Radio

[http://www.caprado.org/123890?utm\\_source=feedburner&utm\\_medium=feed&utm\\_campaign=Feed%3A+CapitalPublicRadioLatestNewsRSS+%28Capital+Public+Radio%3A+Latest+News+RSS%29](http://www.caprado.org/123890?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+CapitalPublicRadioLatestNewsRSS+%28Capital+Public+Radio%3A+Latest+News+RSS%29)

*(AP) — California began a new water year Monday with some rain in the immediate forecast for Sacramento after 12 months of below-average precipitation.*

The Department of Water Resources said the Oct.1-Sept. 30 water year that ended Sunday was marked by hot and dry conditions, except for sporadic significant precipitation.

During the period, the statewide snowpack was just 58 percent of average by April 1, a dramatic reversal from the previous water year in which the pack reached 159 percent of average.

In addition, much of Southern California ended up with half or less than half of average rainfall. San Diego, for example, recorded only 3.34 inches of rain, just 32 percent of normal, according to the National Weather Service.

The state also experienced a siege of record-breaking wildfires during the dry 2017-18 water year.

The department said that despite the below-average precipitation, most California reservoirs currently have near- or above-average levels of water.

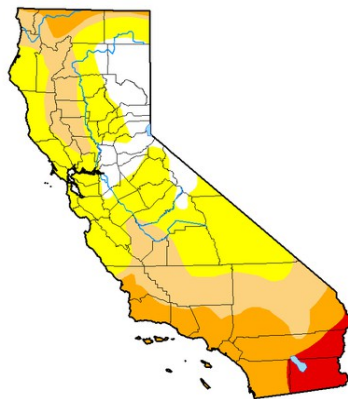
## U.S. Drought Monitor - California

### Summary of Drought for California

Abnormal dryness or drought are currently affecting approximately 34,572,000 people in California, which is about 93% of the state's population.

As of October 2, 2018

[Author: David Miskus, NOAA/NWS/NCEP/CPC](#)



Week	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b> <b>10/02/2018</b>	12.18%	87.82%	47.97%	22.82%	4.93%	0.00%
<b>Last Week</b> <b>9/25/2018</b>	12.18%	87.82%	47.97%	22.82%	4.94%	0.00%
<b>Three Months Ago</b> <b>7/03/2018</b>	14.85%	85.15%	44.17%	20.75%	2.77%	0.00%
<b>Start of Calendar Year</b> <b>1/02/2018</b>	55.70%	44.30%	12.69%	0.00%	0.00%	0.00%
<b>Start of Water Year</b>	12.18%	87.82%	47.97%	22.82%	4.93%	0.00%

Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
10/02/2018						
One Year Ago 10/03/2017	77.88%	22.12%	8.24%	0.00%	0.00%	0.00%

## Oroville Dam Update

The update this week begins with a “flyover” video that does give one a very real sense of just how big the repair project really is.

Then the excerpts from the report, “A Race to the Finish on Oroville Dam Spillway Fix” does not really do justice to it, so I urge you to read the whole report. It does highlight some of the innovations that have been invented on the spot to solve specific construction problems, which are very interesting.

One more report in this section is an excerpt from the article, “Trump signs bill requiring independent inspection of Oroville Dam.”

## Video

### Oroville Spillway 360 Flyover October 2, 2018

<https://www.youtube.com/watch?v=J5EuDwbg25s>

Published on Oct 4, 2018

### *A Race to the Finish on Oroville Dam Spillway Fix*

October 3, 2018

[Scott Blair](#)

<https://www.enr.com/articles/45391-a-race-to-the-finish-on-oroville-dam-spillway-fix>



Photo: DWR

*Seemingly chaotic but actually highly choreographed and sequenced, the \$1.1-billion Lake Oroville Spillways Emergency Recovery Project moves at an ultra-fast-track pace for one important reason: to repair the structures in time to protect cities, farmland and hundreds of thousands of people*

downstream of Oroville Dam before Northern California's rainy season begins in November. The scale of the task is immense. Once the spillways are complete, crews will have moved over 1 million cu yd of earth, cleaned 239,000 sq yd of foundation bedrock and crushed 2.3 million tons of aggregate—all in just 18 months.

The main spillway work was divided into two phases because no construction could occur during the winter rainy season from December until May. Phase one, completed November 2017 (ENR 12/11-18, 2017 p. 10), rebuilt two sections of reinforced structural erosion-control concrete in an 870-ft-long upper chute section and a 350-ft-long lower section. Crews also placed some 350,000 cu yd of roller-compacted concrete (RCC) to fill the massive gouge and to create a temporary spillway surface and walls. The relatively undamaged portion of the old spillway just below the gates remained in place for the season.

In May, crews ramped up again to demolish the rest of the old spillway, remove the temporary RCC and complete the main spillway's permanent structure by placing concrete for the new walls and slab in an alternating checkerboard-like sequence.

Last season, concrete finishing crews found that pulling a screed up a 25% slope by hand was slow, expensive and exhausting. This season, engineers fabricated a homegrown solution, nicknamed "Franken-screed" because it's an assemblage of disparate parts. A carrier beam holds the 37-ft-wide screed, which is then pulled up-slope using portable electric winches mounted on the frame. While similar equipment is commonly used for leveling concrete on flat ground, Franken-screed's modifications for use on the steep grade and its portability via crane make the apparatus one of a kind, Petersen says.

Wall sections run along each side of the 178.5-ft-wide spillway and range from 20 ft to 34.5 ft in height. They vary in width from 2 ft at the top to about 5 ft at the base.

"To accelerate the schedule, we pre-tie the wall cages out on grade beside the spillway and then we fly them in and tie them in place," Petersen says. This allows crews to form the cage while the bottom slab is still curing. "It takes a little extra steel and a template to hold the wall cage up, but the time savings way offsets the cost of doing the extra rebar."

## **Trump signs bill requiring independent inspection of Oroville Dam**

By [Risa Johnson](#)

Chico Enterprise-Record

September 28, 2018

<https://www.oroillemr.com/2018/09/28/trump-signs-bill-requiring-independent-inspection-of-oroville-dam/>

OROVILLE — President Donald Trump recently signed into law a bill which [requires the Federal Energy Regulatory Commission to conduct an independent review](#) of the Oroville Dam facility.

The 2019 Energy and Water Development Appropriations bill requires that the licensee of the Oroville Dam request the U.S. Society on Dams to nominate independent consultants to prepare a risk analysis. That analysis will be considered with the next safety review of the dam in 2019.

Congressman Doug LaMalfa, R-Richvale, issued a written statement in support of the action on Thursday.

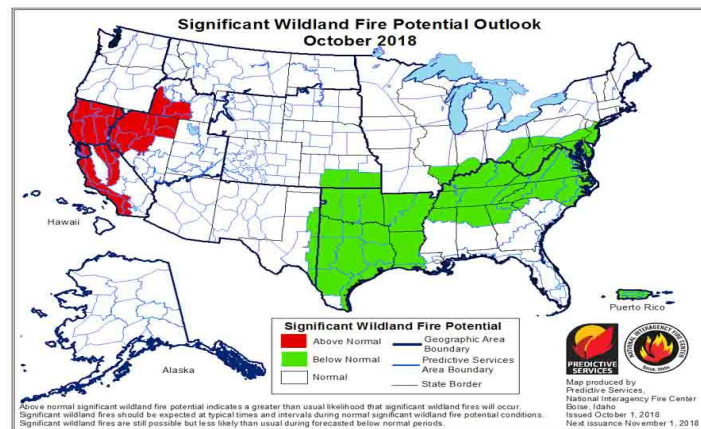
"The previous forensic report raised many concerns with regards to the safety and design of the



Oroville Dam, but I believe a completely independent investigation is required in which there are no current or former employees of DWR involved,” LaMalfa said. “That could be a conflict of interest, and ensuring that this process is thorough is absolutely necessary when it concerns the involvement of federal dollars and the safety of nearby residents.”

## Wildfires: Beware of October

### *Wildfire potential October through January*



October 1, 2018)

<https://wildfiretoday.com/2018/10/01/wildfire-potential-october-through-january-4/>

On October 1 the Predictive Services section at the National Interagency Fire Center issued their Wildland Fire Potential Outlook for October through January. The data represents the cumulative forecasts of the ten Geographic Area Predictive Services Units and the National Predictive Services Unit.

If their analysis is correct, the only areas with above normal wildfire activity in October will be California, Southern Idaho, and Northern Nevada. Those areas will shrink in November to just Central and Southern California, and in December to just Southern California and the Central Coast. In January only Hawaii will have above normal potential.

### **California wildfires: Why October is the most dangerous month**

By [Paul Rogers](#)

Bay Area News Group

October 1, 2018

<https://www.mercurynews.com/2018/10/01/california-wildfires-why-october-is-the-most-dangerous-month/>

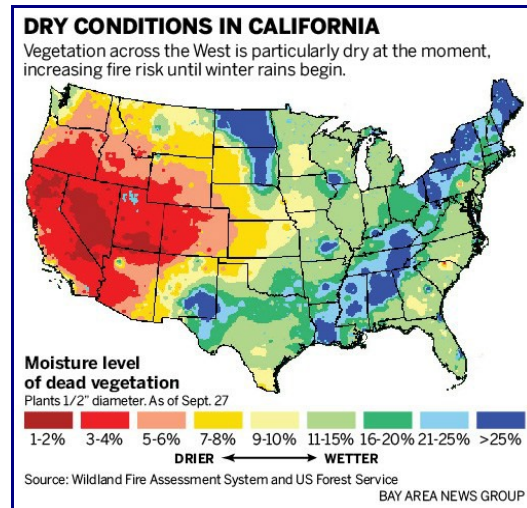
As calendars turn from September to October, cooler weather may give many Californians the idea that the brutal fire season of 2018 is over.

But nothing could be further from the truth, according to fire experts and state fire statistics. October is actually the most dangerous month historically for wildfire risk in the state.

Seven of the 10 worst wildfires in recorded California history, measured by the number of structures burned, have occurred in October. So have the three deadliest, ranked by number of people killed, according to Cal Fire, the state's primary firefighting agency.

"We know what happens this time of year," said Cal Fire Deputy Chief Scott McLean. "We have historical knowledge of what can take place. It's not if. It's when."

There are two primary reasons, experts say: Lack of rain and strong, dry winds.

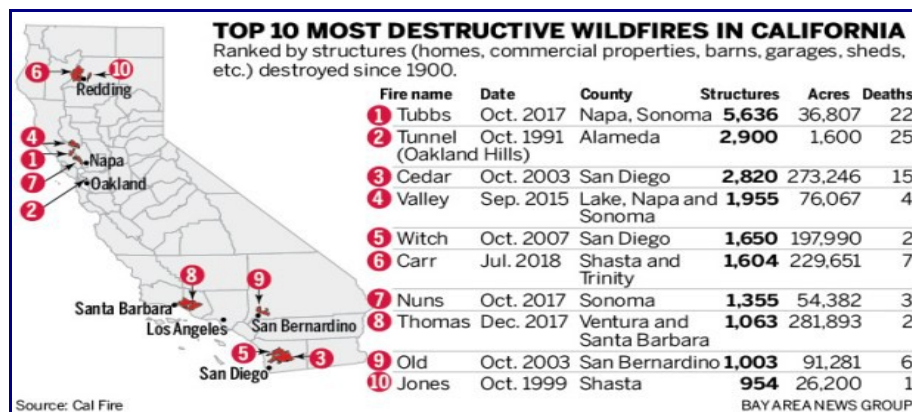


Unlike in most other states, it almost never rains in the summer in California. As part of California's Mediterranean climate, most rain ends in April every year, and apart from a few light sprinkles, doesn't begin again in earnest until November. That means by the time October arrives, nearly six months has passed without rain.

As a result, grass, shrubs and trees are usually at their driest condition of the year in October.

And in the fall, wind danger increases. Because of seasonal weather patterns, strong winds blowing west from dry inland areas like the Nevada desert bring hot, punishing air that can spread embers and flames at breathtaking speed. In Northern California, they are called Diablo Winds; in Southern California they're called Santa Ana Winds.

They have garnered an ominous reputation in California culture, particularly the Southern California variety, which can exceed 50 mph.



# Shasta Dam: To Be or Not To Be Raised 18 Feet?

## *Interview With Richard Welsh Of The U.S. Bureau Of Reclamation: Raising The Height Of Shasta Dam*

By [Marc Albert](#) • Sep 25, 2018

<http://www.mynspr.org/post/interview-richard-welsh-us-bureau-reclamation-raising-height-shasta-dam#stream/0>



Shasta Dam

Credit Bureau of Reclamation / Flickr Creative Commons

*Drilling work is underway at Shasta Dam where federal officials trying to determine how realistic and how expensive it would be to increase the capacity of the largest reservoir in California. The \$1.4 billion plan would add another eighteen and a half feet to the dam. Any higher would create pricey issues at the Pit River Bridge.*

*NSPR's Marc Albert spoke with Richard Welsh, construction engineer for the U.S. Bureau of Reclamation Mid-Pacific Region, who's in charge of the project. It turns out, a higher dam is far from a new idea. Welsh said officials scaled back plans during construction due to labor and material shortages at the outbreak of World War II. Welsh was asked to describe the work currently underway.*

### ***Work begins on raising the height of Shasta Dam***

[Damon Arthur](#),

*Redding Record Searchlight Published*

*Sept. 27, 2018 | U*

<https://www.redding.com/story/news/2018/09/27/work-begins-raising-height-shasta-dam/1449293002/>

*Nathan Morgan has been hanging over the side of side of Shasta Dam recently — sometimes upside down — making marks on the side of the dam.*

*Morgan is part of a U.S. Bureau of Reclamation crew drilling holes in the side and on the top of the dam to test the strength of the concrete.*

*The drilling is part of the prep work to raise the height of the dam 18½ feet.*

*The bureau plans to drill about 70 holes in the dam over the next few weeks, said Don Bader, the bureau's area manager. The crew will also be drilling into the bedrock beneath the dam, he said.*

*They need to drill the holes to test the concrete to determine whether it is strong enough to bear the weight of the 18½-foot cap on the dam.*

*“They’re finding out the concrete is very hard,” Bader said.*



*Crews are drilling nearly 50 holes on top of the dam and numerous holes on both sides of the dam.*

*Earlier this year Congress set aside about \$20 million for pre-construction work and design on the dam raise.*

*Raising the height of the dam 18½ feet will allow the bureau to store an additional 630,000 acre-feet of water in Shasta Lake. The dam currently holds about 4.5 million acre-feet, so the raise would add 14 percent to the lake's capacity.*

## **The Forests: Climate, Pests, Dead Trees and Fires**

### ***Climate change, pests, fallen trees a deadly recipe for US forests***

**October 2, 2018 by Laurent Banguet**

<https://phys.org/news/2018-10-climate-pests-fallen-trees-deadly.html>

*Severe drought, insect infestation and poor forest management have combined in recent years to kill millions of trees in the American West—130 million in California alone—and provide fuel for huge wildfires.*



Trees killed by the mountain pine beetle at a park in Utah

*The crisis is all the more alarming as hundreds of millions of hectares of land were scorched this summer out west in several states, causing a dozen or so deaths.*

*Last Thursday, for instance, the government agency in charge of overseeing firefighting in forests said no fewer than 71 wildfires were burning.*

*And things could get worse. Early this year experts warned of the risk of a new, potentially much more dangerous kind of forest [fire](#).*

*They blame the rampant mortality of [trees](#), mainly conifers, which has ravaged forests as a result of drought and beetle infestation.*

*In the Sierra Nevada mountains of California, some forests have lost 90 percent of their trees, prompting authorities to declare a state of emergency.*

*As for the link between tree deaths and the rise in [forest](#) fires, the factors at play are complex and sometimes deceiving, said Brandon Collins, a researcher who has co-authored a book on the issue.*

### **Natural regulation**

Tree mortality is mainly the result of a vicious cycle involving climate change, which ravages

vegetation through repeated episodes of drought.

The result is that trees are more vulnerable to pests such as the [mountain pine beetle](#) that is killing trees all along the west coast of the US and Canada by laying its larvae under the bark.

*But aside from these problems, US forests were not in good shape to begin with, said Collins, who blamed poor management.*

*He criticized in particular what he called the bad habit of trying to put out every fire at all cost, a practice which leads to unsustainable tree density in forests.*

*Some fires should just be allowed to burn. "That can do some cleaning in the forests that won't kill all the trees," said Collins, likening this to natural regulation.*

## **Trade War and the Potential of China Investment in Building U.S. Infrastructure**

Excerpts from following article highlight, I think, all that is in the article that is worth something.

### ***Trade war could end if China commits to helping Trump make America's infrastructure great again***

*William Mundell says the US should delegate its complaints about China's flaunting of WTO rules to a multilateral organisation while China could direct some of its Belt and Road Initiative funding towards US infrastructure*

*02 October, 2018*

*[US-China trade war: Opinion](#) [US-China trade war: All stories](#) [World Trade Organisation \(WTO\)](#) [Donald Trump](#) [US-China trade war](#) [China-US relations](#) [Trade](#)*

*Over time, China is transforming itself from the world's largest factory to the world's largest market. In the next five to 10 years, China's [middle class](#) is projected to double to some 600 million people. The gift that America gave to China's markets is a gift that China is about to return to America.*

*For the first time in a generation, the US has the real prospect of winning back some of those jobs it lost to China*

*Even if China made no significant progress in opening up its markets, absent a major trade disruption, it's almost guaranteed that China will become the No 1 export destination for the US, eclipsing both Canada and Mexico. For the first time in a generation, the US has the real prospect of winning back some of those jobs it lost to China.*

*China has built up an astonishing mountain of monetary reserves, some part of which is earmarked for its [Belt and Road Initiative](#). That programme, which is currently slated to deploy some US\$1 trillion into infrastructure development across 60 countries, could provide a healthy down payment on the crucial long-term capital needed for President Donald Trump's No 1 domestic policy initiative for 2018.*

*A multi-year, multibillion-dollar commitment by Beijing to [invest in US infrastructure](#) – negotiated under terms that make amends for the past – could provide the catalyst for a building boom in the US and serve as a bridge for additional middle-class jobs in the US until China's own middle class can fully pull its weight in the international trading system.*

*China would begin to be viewed as a job creator, not destroyer, and, with that, [public opinion](#) about China would also begin to change, laying the foundation for further and more permanent integration of the two economies.*

*There is an additional benefit that would come to the US from all this – one that Lee Kuan Yew foresaw years ago. Diverting resources to the US would deprive China of the soft power that comes from being the new candy man of Asia. It would reinforce the status quo in Asia without having to rely on the elusive Asia pivot. As Lee said, whoever dominates the Pacific will rule the world. The long game with China is how countries can capitalise on its rise to strengthen themselves.*

***William Mundell is the producer of a documentary on the US-China relationship, [Better Angels](#), to be released in the autumn***

## **Trade War Fallout: Farmers Get Hit Again**

### ***U.S. Soybean Farmers Hit by Triple Whammy--Wall Street, Beautiful Harvest (!) and Trade Fight***

*Sept. 28, 2018 (EIRNS)--Farmers now in their soybean harvest are hit by a triple whammy--Wall Street, an all-time record crop, and the U.S.-China trade fight.*

*The latest on the tariff conflict, is that China, the biggest U.S. soybean customer, isn't buying. The rosier estimate from the U.S. Agriculture Department is that China will still buy 6-7 million tons a year, down from 32.9 million tons a year.*

*On July 6, U.S. soybean imports to China were put under a 25% tariff, along with \$34 bil of other imported goods, in China's response to the U.S. imposition of 25% tariffs on \$50 billion worth of Chinese imports. As of now China is buying all the soy it can from Brazil, Paraguay and Uruguay, suppliers all along. So much so, that Brazil risks being short on domestic supply, and is importing soybeans from the U.S.!*

*But the big flow of U.S. soybeans is into the EU at double the rate of recent years. This follows President Trump's deal in July with the EU's Jean-Claude Juncker.*

*Despite these new sales patterns, there is still the plight of farmers stuck with the prospect of bins of soybeans with no market. From June to September, the price of a bushel of soybeans dropped 20% from \$10.50 down to \$8.70 at point of export (New Orleans,) and is even lower at the farm gate. This is a 10-year low price, and expected to fall farther.*

*If this sounds wild, keep in mind that the infamous 'merchants of grain' cartel companies conduct most all the trade, and always get their cut. Food doesn't go between farmer and eater. Dominating trading and processing soybeans are Bunge, Cargill, ADM, Louis Dreyfus et al.*

*Unregulated prices to the farmer is a hallmark of Wall Street economics, for the past 50 years, after the FDR-era parity pricing was abandoned by the 1970s. Plus, farm-commodity speculation really went wild after the 2001 enactment of the "Commodity Futures Modernization Act," soon after the repeal of Glass Steagall.*

*Three other Wall Street hallmarks stand out in the case of soybeans: 1) a ban on Federal direction of production (which crops, livestock, dairy, to produce, and how much, based on the national interest;) and 2) furtherance of monoculture and depopulation; 3) no anti-trust.*

*In recent decades, the Wall Street axiom was that U.S. farmers' survival depends on foreign markets, and "free" rigged trade. In reality, this meant cheap-sourcing of U.S. commodities for the cartels to control domestically and internationally. U.S. soybean growers, using the highest tech equipment, seed genetics and practices, were induced by circumstances to get as big as they could, as fast as they could. This was survival. U.S. soy production was upped way above domestic or continental need. By 2000, U.S. soybeans accounted for 47% of total world production; and 55% of all soybeans traded on the world market. By last year, these figures went down to the U.S. accounting for 34% of total world production, and 35% of all soybeans traded globally. But in absolute tonnage, the volumes went up.*

*The cropland in U.S. soybeans has expanded dramatically, displacing even truck gardening near cities, etc. Along with similar dynamics in other kinds of farming, hundreds of farm counties in the Farmbelt are now marked by ghost towns, and abandoned farmsteads, as people had to move out, and fewer families run huge row crop operations. Vast areas are corn-soy monoculture zones. They are high-tech, beautiful fields; but the productive landscape is insane.*

*Now the question is called. What to do next? Farmers' equipment is so big and highly specialized for corn and soy, they can't quickly and easily switch to other crops, even if the land and climate are suitable (canola, sunflowers, flax.)*

*Dump Wall Street, and it can all be worked out. Without the trade war, China's November, 2017 pledge for expanded purchases of U.S. soybeans would have been a win-win deal. China needs the soybeans for livestock feed at present, and by the time it no longer does, the U.S. could have figured out how to transform the soy capacity to something else. Now it's an emergency question.*

*Token aid is in motion from the Trump Administration. On Oct. 1, the U.S. Agriculture Department starts up its "Trade Program" seeking new foreign soy customers. On Sept. 1, the "Market Facilitation Program" started up, for farmers to sign-up to get token payments based on what you produce, and how you are hit by the tariff fight. The amounts are piddling, e.g. one cent per bushel for corn.*

## **Feature:**

### **A Crash is Looming, But a New Bretton Woods Is Within Reach!**

by Brian Lantz and Harley Schlanger

Executive Intelligence Review

September 28, 2018

[https://larouchepub.com/eiw/public/unlisted/2018/eirv45n39-20180928/ijm345LKO121/a\\_crash\\_is\\_looming\\_but\\_a\\_new\\_b.html?utm\\_source=sendinblue&utm\\_campaign=EIR\\_September\\_28&utm\\_medium=email](https://larouchepub.com/eiw/public/unlisted/2018/eirv45n39-20180928/ijm345LKO121/a_crash_is_looming_but_a_new_b.html?utm_source=sendinblue&utm_campaign=EIR_September_28&utm_medium=email)

## **Excerpts:**

Following the 2008 financial collapse, the systemic monetarist ideology at the core of the City of London and Wall Street system was carried forward. The decision to adopt a policy of “bailing out” the bankrupt system did not bring about a physical economic recovery, but secured a further rapid growth of cancerous debt and a continued “financialization” of the United States economy and the global economy as a whole.

During the last ten years, over \$12 trillion in “quantitative easing” (QE) money has been issued under the bail-out policy, at the British Empire’s direction and coordinated through the central banks of the

United States, the European Union, Great Britain and Japan.

Rather than curing the patient, governments instead have fed the very disease which is killing the patient— scrambling to save the British monetarist empire by pumping money into the derivatives market, corporate stock buy-back strategies, mergers and acquisitions, and junk bonds—resulting in a situation in which the financial parasites suck up all the new “blood” of virtually zero-interest rate liquidity, while investment in physical production evaporates.

This policy of “financialization” has further withered U.S. manufacturing, as recently reviewed in *Industry Week*, in an analytical piece titled, “How Financialization is Starving Manufacturing.” The effects of using monetarist measurements of economic well-being are also seen in other ways. New business creation in the United States, for example, (i.e., the muchballyhooed “start-ups”) plunged to a total of only 414,000 businesses formed in 2015, the latest year surveyed, according to the U.S. Census data released in 2017. That compares to 500,000 to 600,000 new companies that were started in the United States every year from the late 1970s to the mid-2000s. As well, rural areas have been given a “death sentence.” The cost of all this, in human lives and misery, is almost beyond calculation, and will only be touched on here, briefly.

While industry and agriculture have been starved of credit, the reign of “quantitative easing” has actually done nothing to stabilize financial markets. The central banks of Europe, Japan and America are now themselves choking on a total of approximately \$14.5 trillion equivalent (at face value) of bank, government and corporate financial paper that they have purchased since 2008.<sup>3</sup> This deployment of “helicopter money” has only increased financial indebtedness, while also producing a dramatic growth of the S&P 500 Index from its low in early 2009—this, itself, a sign of increasing financial instability, as “Ponzi scheme” financial betting replaces long-term productive investment.

### **Debt as the Trigger**

An important feature of the building financial crisis has been the growth of corporate, government and personal debt. Worldwide, in the ten years since the 2008 global financial crisis, the debt held by nonfinancial corporations has grown by \$29 trillion, and since 2007, the value of corporate bonds outstanding from nonfinancial companies has nearly tripled to \$11.7 trillion, according to a McKinsey & Company piece, “Are We in a Corporate Debt Bubble?” The McKinsey article, written by Judy Lund, continues,

Over the next five years, a record \$1.5 trillion worth of nonfinancial corporate bonds will mature each year; as some companies struggle to repay, defaults will most likely rise. . . . The average quality of borrowers has declined. In the U.S., 22% of nonfinancial corporate debt outstanding comprises “junk” bonds from speculative-grade issuers, and another 40% are rated BBB, just one notch above junk. In other words, nearly two-thirds of bonds are from companies at a higher risk of default, including many U.S. retailers.

On September 20, former FDIC chair Sheila Bair also joined in warning of the danger of ballooning consumer and corporate debt.

The explosion of debt has reached such proportions that even normally “heads in the sand” media outlets, such as Bloomberg, Forbes and CNBC, have become increasingly and overtly frantic about a potential crisis. A slew of relevant articles in their publications appeared on or around September 15, the 10th anniversary of the collapse of Lehman Brothers Investment Bank.

With all of the talk of corporate and consumer debt, however, a far more deadly dimension of the crisis is now unfolding, a dimension rarely discussed, and one which you will not see addressed in the media outlets just mentioned. The hard reality is that unless the lurking issue of the quadrillion dollar market



in speculative financial aggregates—most of it in the form of financial derivatives—is addressed, no attempt to get us safely out of the current crisis is possible. Since the crisis of 2008, this financial cauldron has been sustained at a roiling boil. This has been the consequence of “quantitative easing” as well as ever-softening “Too Big to Fail” bank reserve requirements and kindred measures.

The utter silence on the greatest danger that we face stems from the fact that those who run the central banks and other components of the financial system have refused to admit the actual nature of the 2007-2008 collapse. Many still insist on labeling that catastrophe as a “subprime mortgage” crisis, when even a cursory look at Lehman Brothers reveals that at the time of its collapse, it held approximately 930,000 over-the-counter (OTC) derivatives contracts.

### **LaRouche’s Full ‘Four Laws’ Required**

In 2014, Lyndon LaRouche issued, “The Four New Laws to Save the U.S.A. Now! Not an Option; An Immediate Necessity” (<https://larouchepac.com/fourlaws>).

In that document, LaRouche defines the only legitimate and scientifically accurate approach to economics, one which will secure future progress for the human species. Here, Man, not money or “supply and demand,” are placed at the center of economics. Mr. LaRouche specifies that the U.S. government must now be charged with the responsibility, “to institute four specific, cardinal measures: measures which must be fully consistent with the specific intent of the original U.S. Federal Constitution.” The Four New Laws feature reinstatement of Franklin Roosevelt’s original GlassSteagall banking separation act; a return to a national banking system; U.S. federal credits uttered to build a new U.S. infrastructure platform and a high technology, high-productivity economy; and a crash “science driver” program to develop fusion power and greatly expand NASA’s human space exploration program.

LaRouche points out that the “four new laws” are a unity and must be grasped as a unity. This unity embraces humankind itself—the true identity of every human being as a potential genius—and provides the opportunity (physical, moral, and emotional) for every individual to lead a functionally productive, and by implication, immortal, life. The “four specific cardinal measures” taken as a unity are the means to achieving this rebirth, this renaissance, of our nation.

LaRouche’s economic approach is based on physical science, i.e., Man’s creative discoveries, which constantly redefine our relationship to the universe around us. This is LaRouche’s Science of Physical Economy, developed through his study of the discoveries of scientists and physical economists of the past, such as Johannes Kepler, Gottfried Leibniz and Bernhard Riemann. He made advances on their work through his own unique discoveries, parallel to the earlier “American” approach of Benjamin Franklin and Alexander Hamilton.

For LaRouche and these scientists mentioned above, an economy is not about financial profits or “monetary theory”—which has been the basis of all neo-liberal economic “theory,” a thinly-disguised justification for looting populations, and one which has been hegemonic in the British Empire for 300 years. Rather, physical economics is about applying the most advanced scientific discoveries to the production and distribution of goods, to provide an improving standard of living for all people, while at the same time investing in the future, in areas which will lead to the scientific and technological progress needed to provide for the next generations.