California Drought (and Flood) Update

For March 2, 2017
by Patrick Ruckert

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Hopefully, the 250th year for America will see a world that is more peaceful, more just and more free.

On our 100th anniversary, in 1876, citizens from across our Nation came to Philadelphia to celebrate America's centennial. At that celebration, the country's builders and artists and inventors showed off their creations. Alexander Graham Bell displayed his telephone for the first time. Remington unveiled the first typewriter. An early attempt was made at electric light. Thomas Edison showed an automatic telegraph and an electric pen.

Imagine the wonders our country could know in America's 250th year. Think of the marvels we can achieve if we simply set free the dreams of our people. Cures to illnesses that have always plagued us are not too much to hope. American footprints on distant worlds are not too big a dream. Millions lifted from welfare to work is not too much to expect. And streets where mothers are safe from fear -- schools where children learn in peace -- and jobs where Americans prosper and grow -- are not too much to ask. When we have all of this, we will have made America greater than ever before. For all Americans.

This is our vision. This is our mission.

President Donald Trump
Address to Congress and the American People
February 28, 2018

A Note To Readers

Who would have thought, even just weeks ago, that I would feature a quotation from President Trump to introduce an issue of this publication? Definitely not myself. The challenge before us all is to make

the last sentence quoted, *"This is our mission,"* really our mission. His reference to the 1876 Centennial Celebration in Philadelphia, and the remarkable inventions and technologies displayed there, is not quite unique, but that does not detract from his featuring it. The LaRouche organization has for decades cited that celebration as a high point of the post-Civil War industrialization of the United States, a celebration that thousands of people from all over the world attended and who saw what the American System of Alexander Hamilton and Abraham Lincoln was capable of producing.

No President since John Kennedy has challenged us to do that which is, not easy, but difficult, until President Trump two nights ago. No President, again since John Kennedy, has said, "*American footprints on distant worlds are not too big a dream."* While the President has presented a vision and the idea that optimism for the future must become once again the normal state of mind of our people, he has still failed to put forth the first step that can make that possible. He must act to destroy the Wall Street power that has crippled our nation for the past 45 years; he must begin by reinstating the Glass-Steagall banking law. Then he must move on to creating a Hamiltonian credit and banking system that can fund the trillions of dollars required to build and rebuild the nation's infrastructure. His administration will be crippled and fail if he does not do that.

And with $1 billion damage in California from the recent storms and floods, and a requirement of $65 billion per year in the state to just maintain and upgrade the state's existing water infrastructure, it is only with such an American System policy that that can be done. President Trump cited Abraham Lincoln in his speech to Congress on the question of tariffs to protect American industry. That was only part of Lincoln's American System. The Transcontinental Railway, Agricultural colleges, and the Green Back currency to fund that, and the Civil War, begins to fill out more fully that American System.

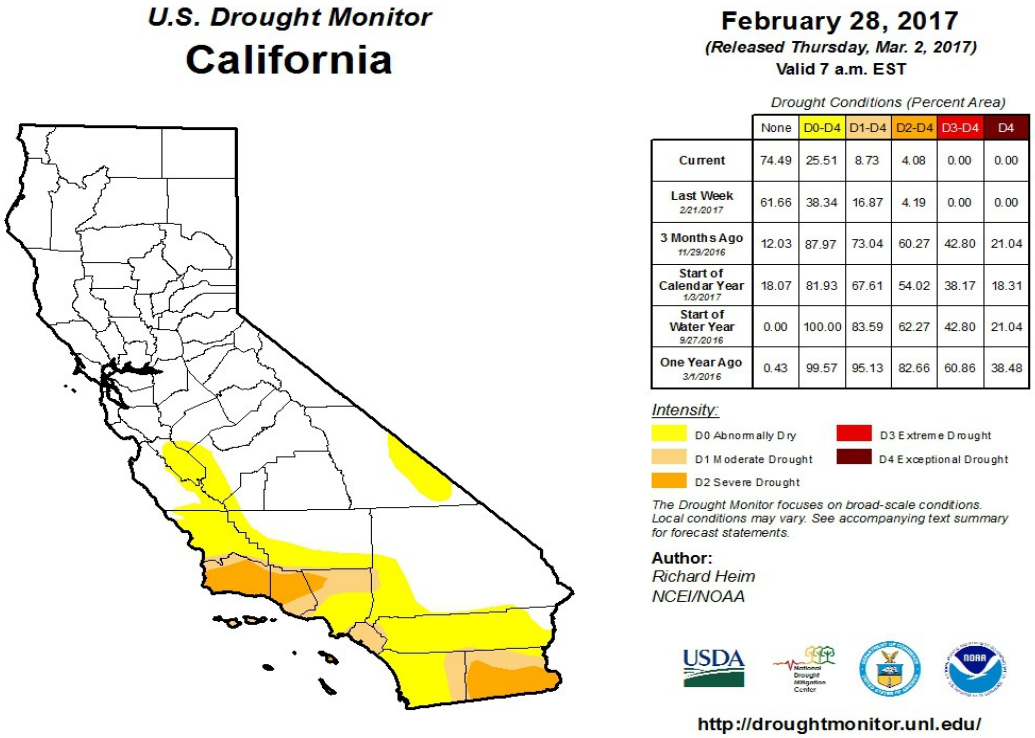
This week, following our mandatory *U.S. Drought Monitor*, which shows the drought all but gone, is an article which will be published in the *Executive Intelligence Review* on March 3, "Oroville Dam's near catastrophe: A wake up call for the nation," which presents not only the story of the Dam, but also an overview of the state and of the nation's crumbling infrastructure, and the pathway forward which the President must take.

A few more items follow which hit a few highlights of the drought, the flood, and even what to expect nature to deliver in the weeks to come.

U.S. Drought Monitor

The Monitor speaks for itself: The drought is but a shadow of what it was just a few weeks ago. The near record precipitation this winter in the state has produced a snowpack water content level in the Sierras of 185% of the March 1 average. The snow water equivalent is the depth of water that would, in theory, result if the entire snowpack melted all at once. This is the key factor in estimating the snowpack's run-off in the spring and early summer. Snowpack provides about 30% of California's water needs.

While the drought may be the past, the present and the future must face depleted groundwater aquifers, tens of millions of dollars of damage to roads, bridges and even the main aqueducts of the state and federal aqueducts due to subsidence.



Oroville Dam's near catastrophe: A wake up call for the nation

By Patrick Ruckert

February 27, 2017

Oroville Dam and spillways

Aerial photo taken Sunday morning, February 12, shows water running over the emergency spillway, at the left, and down the hill into the diversion pool. The main spillway flows at center and the dam is

at the far right.

Late Sunday afternoon on February 12, an emergency alarm was sounded by the Yuba County, California Sheriff:

"This is an evacuation order. Immediate evacuation from the low levels of Oroville and areas downstream is ordered. A hazardous situation is developing with the Oroville Dam auxiliary spillway. Operation of the auxiliary spillway has lead to severe erosion that could lead to a failure of the structure. Failure of the auxiliary spillway structure will result in an uncontrolled release of flood waters from Lake Oroville. Immediate evacuation from the low levels of Oroville and areas downstream is ordered. This in NOT A Drill. This in NOT A Drill. This in NOT A Drill."

Soon, 188,000 people were in their cars, jamming the roads and becoming more and panic stricken as authorities over emergency broadcast networks were warning that the Oroville Dam emergency spillway could collapse within the hour. Had it done so, a 30-foot wall of water would have swept down the valley of the Feather River. The casualties would have been in the thousands.

We shall return to the story of Oroville Dam shortly. But, first, to be blunt, the dams, the bridges, the roads– the entire infrastructure system of the nation, is not only inadequate, but it is falling apart after decades of neglect. Fifty years of the "post-industrial society," the turning of our once magnificent industrial, scientific, and infrastructure driven economy into a Wall Street nightmare of financial speculation has wrecked the what was the most productive economy in the world.

This is not the place to catalog the symptoms of this crime against humanity, but I want to use the near catastrophe of Oroville Dam to discuss the potential now represented by the Trump Presidency to, in his words, "make America great again." Neither dams nor nations can be made great by words alone. Those who wish to do so must know what they are doing and take the necessary action.

We shall begin by noting what President Donald Trump said last week, speaking at the Conservative PAC conference in Washington, D.C.:

"We've spent trillions of dollars overseas while allowing our own infrastructure to fall into total disrepair and decay. In the Middle East, we've spent as of four weeks ago $6 trillion. Think of it. And, by the way, the Middle East is in what – I mean, it's not even close – it's in much worse shape than it was 15 years ago. If our Presidents would have gone to the beach for 15 years, we would be in much better shape than we are right now, that I can tell you. Yeah, a hell of a lot better. We could have rebuilt our country three times with that money."

The President is right, and he has put forth as his policy the investment of $1 trillion over ten years in building and rebuilding America's infrastructure. What he has not made clear is how even that moderate plan is to be done— moderate because one trillion over ten years does not even come close to what is required.

In an interview with the editor of the San Francisco Review of Books, Joseph Ford Cotto, published February 15, 2017, Lyndon LaRouche said:

"Trump has promised to invest $1 trillion in urgently needed infrastructure and promised the implementation of a 21st century Glass Steagall Act. If he implements his infrastructure promise, he will need that reform to finance it.... Really we're talking about Trump on the basis that he is now the new leader for the United States. He has promised to build up the American economy again, and there are great precedents of American presidents using the American System of Economy as it was developed by Alexander Hamilton, explicitly in contrast to the British System of Free Trade. That is the system that worked in the past, and it will work again. Now, what Trump has done by his success, here,

is to build up the possibility of a revival of the U.S. economy."

U.S. Infrastructure Flunks the Test

Though the term infrastructure is used here, a word of context must be stated. Some years ago Lyndon LaRouche made the point that the term infrastructure is inadequate; it does not describe the real process of human progress. Rather, the term platforms of productivity should be used to represent how mankind's economy must always be governed by a process of leaping upward in its productive power. It is by introducing new scientific principles, and applying those discoveries through new technologies, that our species is able to increase its potential relative population density, also a term created by LaRouche. New platforms of productivity transform the entire array of technologies of an economy, much like the introduction of railroads did in the 19th century, and the Apollo Project did in the 1960s.

The American Society of Civil Engineers regularly issues a "scorecard," rating the various categories of our nation's infrastructure. The "score card" for 2013 tells us that if the nation was a student we would be repeating the second grade. The price tag, as estimated by the Society, just to repair the existing infrastructure by 2020, is $3.6 trillion. Thousands of dams and bridges need repair, many of which are in a dangerous condition. The five year California drought was alleviated by a dramatic increase of pumping groundwater from the aquifers, which has created a subsidence of the ground throughout especially the Central Valley. As the ground subsides damage to roadways, bridges and even the California Aqueduct, is now and will cost tens of millions to repair. For just California alone, the "report card" specifies $65 billion per year is required to fix and maintain its water infrastructure. And that does not include the one billion in damage to the roads and bridges of the state caused by the past few weeks of flooding.

Case Study: U.S. Dams

The following excerpts from the "Report Card" of the American Society of Civil Engineers summarize the numbers, the conditions, and the cost immediately required to ensure the safety of U.S. dams:

Thousands of our nation's dams are in need of rehabilitation to meet current design and safety standards. They are not only aging, but are subject to stricter criteria as a result of increased downstream development and advancing scientific knowledge predicting flooding, earthquakes, and dam failures.

The average age of the 84,000 dams in the country is 52 years old. The nation's dams are aging and the number of high-hazard dams is on the rise. Many of these dams were built as low-hazard dams protecting undeveloped agricultural land. However, with an increasing population and greater development below dams, the overall number of high-hazard dams continues to increase, to nearly 14,000 in 2012. The number of deficient dams is estimated at more than 4,000, which includes 2,000 deficient high-hazard dams. The Association of State Dam Safety Officials estimates that it will require an investment of $21 billion to repair these aging, yet critical, high-hazard dams.

The complexity of monitoring the conditions of our nation's dams is partly because they are owned and operated by many different entities. While some of the nation's dams are owned and operated by federal, state, and local governments, the majority, 69%, are owned by a private entity. The federal government owns 3,225 dams, or approximately 4% of the nation's dams. It may be surprising to some that the U.S. Army Corps of Engineers owns only 694 dams.

Other than 2,600 dams regulated by the Federal Energy Regulatory Commission, the remaining dams in the nation are not regulated by the federal government, but instead rely on state dam safety programs for inspection. State dam safety programs have primary responsibility and permitting, inspection, and enforcement authority for 80% of the nation's dams.

Funding needs are significant, and vary according to who owns and operates the dam. The Association of State Dam Safety Officials estimates that the total cost to rehabilitate the nation's non-federal and federal dams is over $57 billion. To rehabilitate just those dams categorized as most critical, or high-hazard, would cost the nation $21 billion, a cost that continues to rise as maintenance, repair, and rehabilitation are delayed. Overall, state dam safety program staffing has increased over the past several years. However, in 2011 state programs spent over $44 million on their regulatory programs, a decrease from recent years.

The U.S. Army Corps of Engineers estimates that more than $25 billion will be required to address dam deficiencies for Corps-owned dams.

The Oroville Dam

Oroville Dam is just one of thousands of dams in the nation that forty years of neglect have made dangerous to millions of people. Oroville Dam must be the wake-up call to the nation that a serious infrastructure building and repair policy must be initiated now.

Oroville Dam is not only the tallest dam in the United States at 770 feet, but it is the lynch-pin reservoir of the California State Water Project, which, with the Central Valley Project initiated by FDR, created the most extensive and complex water management system in the world. The dam is about 80 miles northeast of Sacramento and sits on the Feather River, which flows into the Sacramento River, and is the heart of the system that provides the water for 23 million people and millions of acres of farmland, including southern California 400 miles to the south.

It is an earthen dam with a concrete core and was completed in 1968. For fifty years the emergency spillway had never been used until, suddenly in early February, the regular spillway began to disintegrate. The emergency spillway was never armored with concrete and thus remained nothing but a hill of dirt sitting under the berm of concrete to the west of the dam itself. Warnings were made twelve years ago that should the emergency spillway be required to be used the dirt below the berm would rapidly wash away and the foundation of the berm would collapse. These warnings were dismissed by both state and federal regulators as an improbable danger. In truth, armoring the spillway would have cost some millions in 1968, and probably ten times that in 2005, which neither the Bush nor the Schwartznegger administrations, nor the water contractors who would have to cover some of the cost, wanted to bear.

Here is a February 27 picture of the damage to the main spillway

When the main spillway began to disintegrate on February 7, the decision to close the gates to the spillway was made and the gates closed on Feb. 10. Stopping the flow down the spillway, with more than 100,000 cubic feet per second of water flowing into the reservoir from the storm run-off and melting snow, resulted in the reservoir level rising as much as 10 feet per day. On Feb. 11, the rising reservoir overflowed into the emergency spillway, while at the same time water was once again allowed to flow down the main spillway, with the managers accepting the consequence that more damage would be done to it.

The emergency spillway, the designers and engineers claimed, would be able to handle a flow of 250,000 cubic feet of water per minute (cfm). On Sunday afternoon, Feb. 12, with a flow of just over 12,000 cfm, it became clear that the water was eroding the hillside, threatening a collapse of the berm that would send a wall of water 30 feet high down the river and into the communities below. That is when the emergency evacuation order was issued. The regular spillway's gates were immediately reopened and within a day the water level in the reservoir had fallen below the lip of the berm, stopping the flow of water down the emergency spillway. Two days later people were given the all clear signal to return to their homes.

In the two weeks since, the regular spillway has remained opened, and the reservoir level is now 50 feet below the top of the dam. Further damage to the regular spillway is assumed to be occurring, but for now access to it is impossible due to the high volume flow of water. The early estimate of the cost to repair the spillway, which won't be possible to do until the Winter and Spring run-off subsides, is $200 million.

Water flows over the emergency spillway, eroding the supporting soil.

China Offers to Help Make America Great Again

In January of this year, Ding Xuedong, the chairman of the the China Investment Corporation (CIC), offered to change the CIC's holdings of U.S. Treasury debt, into an investment for the building of new infrastructure in the United States. Ding's estimate of the investment needed to build a new and modern economic infrastructure in America was a very large $8 trillion. CIC now holds $50 billion in U.S. Treasuries, a part of $1.14 trillion in Treasuries held by Chinese institutions. The insane quantitative

easing policy of the Federal Reserve has made the returns on those Treasury bills virtually zero. The Chinese would like a better return on their holdings and see investing in building U.S. infrastructure as a way to do so. In addition, of course, that opens the door to more U.S.-Chinese cooperation. A reflection of the Win-Win policy of President Xi's "One Belt-One Road" policy, or as it is often referred to— "The New Silk Road." In addition to these Chinese proposals, it must also be mentioned that Japanese Prime Minister Abe, in his discussions with President Trump earlier this month, also offered to invest a one to two trillion dollars in U.S. infrastructure.

Part of China's fleet of high-speed trains. China with 11,000 miles of high-speed rail now, plans to make that 20,000 miles by 2020.

The vehicle for investment in U.S. infrastructure that the CIC is seeking, in fact, does not yet exist; it would be a "Hamiltonian" national credit institution for infrastructure and manufacturing investments, as specified in EIR Founding Editor Lyndon LaRouche's "Four Laws to save the United States economy" in 2014.

These Four Laws start with reimposing Franklin Roosevelt's Glass-Steagall legislation, together with a return to Hamiltonian National Banking as a means of extending credit into the real economy, spearheaded by science-drivers in fusion energy development and a restoration of NASA and the exploration of space.

In 2014, Lyndon LaRouche's political action committee, LaRouche PAC, published a detailed report on exactly what must be the U.S. policy. That report, "The United States Joins the New Silk Road: A Hamiltonian Vision for an Economic Renaissance," soon to be updated, provides the blueprint President Trump must adopt. The plan includes a nation-wide high-speed and maglev rail network, connecting North America to Asia by the Bering Straight Tunnel, the building of new Renaissance cities with a mission to drive forward the frontiers of science, the rapid development of fusion energy, an expanded space program, and great water projects to manage the global water cycle.

Last week the President met with about 30 leaders of American industrial corporations, and he was informed by them of the problems their companies are having in getting financing to expand production and to increase their exports, specifying, for example, the virtual cut-off of guarantees from the U.S. Export-Import Bank.

For American corporations the export market means life or death. For example, General Motors delivered a record 3,870,587 vehicles to China in 2016, and China remained GM's largest market in terms of retail sales for the fifth consecutive year, accounting for more than one-third of the company's global sales. Similarly, Caterpillar, Inc, the world's largest producer of heavy machinery, in 2016 saw its sales fall, except to China, where expanded sales to that country is driven by its massive infrastructure building as part of the One Belt-One Road policy.

30 Atmospheric Rivers!

Here are excerpts from two articles which summarize the rain, the snow, the atmospheric rivers, water allocations from the two major projects and the condition of the groundwater

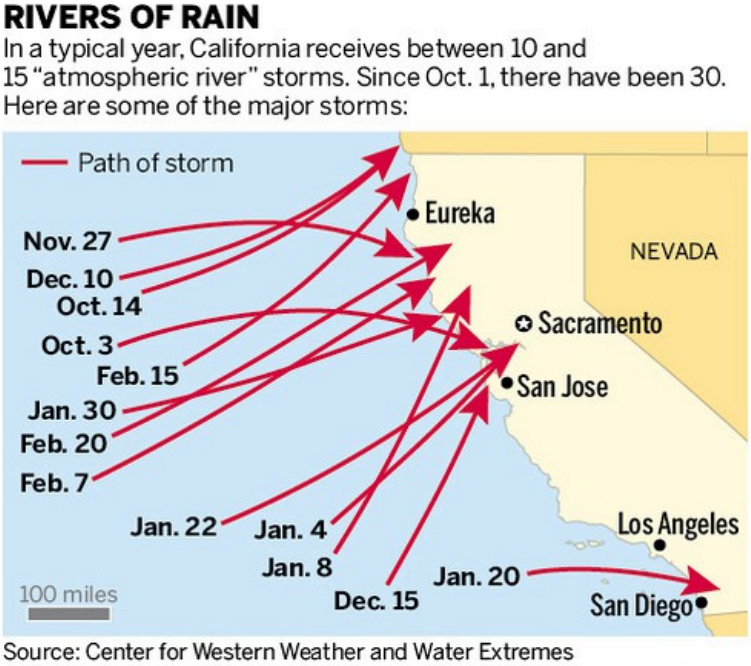
California by the numbers: A billion dollar winter

https://www.theweathernetwork.com/us/news/articles/us-weather/california-by-the-numbers-millions-needed-as-drought-ends/79869

Wednesday, March 1, 2017, 10:57 - How many times have we heard the term "River of Moisture" or "Pineapple Express" during these past few months? Certainly more times than over the past 6 years, and very likely more than during some of the wettest years on record in the state of California.

The rainy season in California normally extends from about December to March. During an average precipitation year, one would expect to see between 10 to 15 "Atmospheric River" fed storms moving into some portion of the state. But since the official start of the precipitation season on October 1, 2016, the persistent flow of moisture that crosses the Pacific from Hawaii and beyond to account for up to 50% of the state's precipitation, has been tremendously enhanced.

So far, this winter has been the wettest ever measured in the northern Sierra Nevada's, with precipitation reaching 230 percent of the historic average.



Adding the latest February 2017 data, since October 1 2016, some mountain observatories in the Lake Tahoe and Mount Shasta area have measured precipitation values well above those registered during El Niño monster winters of 1997-98 and 1982-83.

So, is California done with the drought?

This year has started very dry in many areas of California, with over 50% of the state in a severe to exceptional drought situation. Two months later the value has been reduced to close to 4%.

Experts will say the drought is pretty much over, but … the main question is ***what about the groundwater****?*

The intense and prolonged drought has left so many areas with no groundwater at all, that it will be tough to refill all that volume even after the exceptionally wet winter Californians are living this year.

The importance of groundwater

Groundwater, the water we don´t see flowing down rivers and reservoirs, contributes between ***40 to 60% to the state's water supply*** *depending on how dry the year is.*

California taps on this resource continuously, especially in the Central San Joaquin Valley, an area that contributes to 8% of the food produced in the US. This is perhaps the big dilemma when it comes to finding and appropriate answer to the drought question.

Yes, surface drought might be almost over in California, but the ***groundwater supply is far from reaching normal values*** *despite the continuous deluge across much of the state.*

'Phenomenal' snowpack brightens California water outlook

By Tim Hearden
Capital Press

March 1, 2017

http://www.capitalpress.com/California/20170301/phenomenal-snowpack-brightens-california-water-outlook

SACRAMENTO — The chances of an abundant water supply for California growers this summer keep improving as the water content in snowpack remains far above normal.

The state Department of Water Resources third manual snow survey of the season found a snow-water equivalent of 43.4 inches on March 1 — well above the average of 24.3 inches for the date.

"It's not the record, the record being 56.4 (inches), but it's still a pretty phenomenal snowpack," state snow survey chief Frank Gehrke told reporters after the survey at Phillips Station, about 90 miles east of Sacramento. "January and February came in with some really quite phenomenal atmospheric river storms, many of which were cold enough to really boost the snowpack."

In all, California has been hit with 30 "atmospheric river" storms this winter, DWR spokesman Doug Carlson said. The storms have left a statewide snowpack holding 45.5 inches of water, or 185 percent of the March 1 average of 24.6 inches, according to electronic readings from the agency's 98 stations scattered throughout the Sierra Nevada.

The snowpack was a key factor in the U.S. Bureau of Reclamation's decision to allocate 100 percent of contracted supplies to many farmers in the Central Valley, including settlement and exchange contractors along the Sacramento and San Joaquin rivers, respectively, and the Friant Division in the eastern San Joaquin Valley.

The State Water Project promises to deliver at least 60 percent of contracted supplies to its 29 member water agencies. The state issued an initial allocation of 20 percent in late November and has raised it twice; the decision of whether it will be raised again is still under review, Carlson said.

Colleen Cecil, the Butte County Farm Bureau's manager, has said she hopes the wet winter will eventually prompt state water regulators to provide the first full allocation since 2006.