California Water and Infrastructure Report

Formerly, the "California Drought (and Flood) Update"

For November 2, 2017

by Patrick Ruckert

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Xi Jinping Is 'Optimistic about the Prospects for China-U.S. Relations' with Win-Win Cooperation

Nov. 1 (EIRNS)—Chinese President Xi Jinping met on Oct. 30 with the advisory board of the prestigious Tsinhua University's School of Economics and Management. The board includes a number of high-profile Americans—Henry Paulson (Chairman of the Paulson Institute), Stephen Schwarzman (Blackstone Group Chairman), Jim Breyer (Breyer Capital founder and CEO), Mark Zuckerberg (Facebook CEO), etc.—and Xi used the occasion to deliver a message and set the tone for his Nov. 8-10 meeting with President Donald Trump.

According to an account in Xinhua, Xi stated: "As a beneficiary of and contributor to economic globalization, China's development is the opportunity for the world. China's opening up is not a zero-sum game but win-win cooperation." Xi further stated that "We are optimistic about the prospects for China-U.S. relations." He elaborated, in Xinhua's paraphrase of his remarks, that "he is looking forward to receiving U.S. President Donald Trump in Beijing early next month. China is willing to work with the U.S. side to look far ahead and aim high, take each other's interests and concerns into consideration, properly solve differences and jointly promote China-U.S. cooperation so as to realize a mutually beneficial and win-win situation. [China will] promote the establishment of a community of shared future for mankind."

A Note To Readers

Tomorrow, President Trump begins his eleven day trip to Asia for summit meetings in Japan and South

Korea, two days of meetings with President Xi of China, and to participate in the Asian Pacific Economic Community (APEC) conference in Vietnam. At the APEC conference he will have personal meetings with President Putin of Russia and President Duterte from the Philippines, among others. Accompanying the President will be the heads of 40 U.S. industrial corporations, like Caterpillar, GE, the Boeing Company and others. Billions in deals are expected to be signed, especially with China.

We should recall that China, holding more than one trillion dollars of U.S. Treasury Bills, has offered to invest, to start with, at least $100 billion of those bills in building U.S. infrastructure. And since the President, once again this past week, has stated that the so-called Public-Private Partnership funding by Wall Street speculators is unworkable and will not participate, that leaves him the only alternative of federal and local government funding-- the only method ever used in the U.S. to actually get real infrastructure built.

Perhaps this trip by the President will signal that the United States, at least de facto, will be joining in the greatest infrastructure building project in human history, China's Belt and Road Initiative.

China could, if the U.S. would set it up, invest those billions in a "National Infrastructure Bank," earning, say 3% on their investments, rather than the 0.5% they now receive for the T-bills. Then we are off to the races, funding and building great projects once again. And as Lincoln initiated the Trans-Continental Rail Road, and FDR built the Tennessee Valley Project, the Central Valley Project and much more, and as JFK built water projects all over the West and sent us on our way to the Moon, then President Trump can join this pantheon of great builders of the nation.

Special Report: Phase I of the repair of the Oroville Dam spillway completed on time

Another big event occurred this week. Yesterday was November 1, the deadline for the repair of phase I of the Oroville Dam spillway. Finally, we can happily say, a big project was done on time. This week's report focuses on Oroville Dam, with lots of videos-- some of them quite striking, especially the time lapse ones, and the last one showing the completed project. Also there is one video on the building of the Oroville Dam.

And the rest of this week's report

More on the Delta tunnels. What will be done is still up in the air.

Demonstrating that tens of billions in just maintenance are required for the state's water infrastructure is the report on the levees that protect not only Sacramento, but broad areas of state, is a report that, in the wake of the Houston flooding, demonstrates how vulnerable we are. The 1862 flood that put the capital under 20 feet of water for weeks is referenced.

That leads to our feature on the financing of infrastructure, and I'll not say more on that here.

Oroville Dam Special Report

Yesterday was the November 1 deadline for completing phase I of the repairs of the Oroville Dam spillway. The Department of Water Resources announce that it was done on time. As is noted in some of the reports, a project of this size normally would take years to plan and complete. This was done in five months, demonstrating that, yes, we Americans can get important things built, competently and on time, when we rip up all the damn habits that has come to paralyze us these past decades.

Just to recall those early weeks of the near catastrophic events, here are links to my two articles

published in March and May:

Oroville Dam's Near Catastrophe: A Wake-Up Call for the Nation
http://larouchepub.com/eiw/public/2017/eirv44n09-20170303/35-38_4409.pdf

Here is how that first article began:

Feb. 26—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 led 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 is not a Drill. This is not a Drill. This is not a Drill."

New York City Can Learn a Lesson From the Oroville Dam Catastrophe
https://www.larouchepub.com/eiw/public/2017/eirv44n28-20170714/30-32_4428.pdf

Videos:

Oroville Spillway Update October 24, 2017

California DWR
Published on Oct 25, 2017
https://www.youtube.com/watch?v=zAuJ4qWY1yg&t=25s

On October 24, 2017, crews made the connection between the lower and upper chutes, having placed more than 300,000 cubic yards of roller-compacted concrete (RCC) in the middle area of the main Lake Oroville spillway. Crews will continue to finish the RCC walls and place a layer of enriched RCC over the surface of the center chute.

Oroville Spillway Flyover October 30, 2017

California DWR
Published on Oct 31, 2017
https://www.youtube.com/watch?v=bJgGSPk25kI

Oroville Spillway Time Lapse October 31, 2017

California DWR
Published on Nov 1, 2017
https://www.youtube.com/watch?v=xhKiq4DSLfY

Oroville Spillway Flyover November 1, 2017, 5:30 p.m.

California DWR
Published on Nov 1, 2017
https://www.youtube.com/watch?v=Rx2aAhg3VVU

Oroville Spillway Flyover November 1, 2017, 7:30 a.m.

California DWR
Published on Nov 1, 2017
https://www.youtube.com/watch?v=dqR31VDNaU0

Oroville Spillway Flyover November 1, 2017, 5:30 p.m.

California DWR
Published on Nov 1, 2017
https://www.youtube.com/watch?time_continue=4&v=Rx2aAhg3VVU

Oroville Spillway Flyover Compilation: May – October

California DWR
Published on Nov 1, 2017
https://www.youtube.com/watch?v=5YZv0Xo_rqE

This compilation of drone footage from May 20, 2017 through November 1, 2017 highlights the incredible transformation of Lake Oroville's gated flood control (main) spillway throughout the recovery effort. Kiewit Infrastructure has been the lead contractor completing this massive construction effort to repair and reconstruct the main spillway by Nov. 1, 2017 to handle flows of 100,000 cubic-feet per second this winter.

CONSTRUCTION OF THE LAKE OROVILLE DAM & SPILLWAY HISTORIC FILM 53054 MD

PeriscopeFilm

Published on Mar 3, 2017

https://www.youtube.com/watch?v=how56Jem9ZU

This historic film shows the construction of the Oroville Dam, which has been in the headlines of late. The film provides a fascinating look at how this massive embankment dam was created. The film was likely made by McDowell Wellman, who designed the state of the art excavator shown in the film.

Oroville Dam is an earthfill embankment dam on the Feather River east of the city of Oroville, California, in the Sierra Nevada foothills east of the Sacramento Valley. At 770 feet (235 m) high, it is the tallest earthfill dam in the U.S. and serves mainly for water supply, hydroelectricity generation and flood control. The dam impounds Lake Oroville, the second largest man-made lake in the state of California, capable of storing more than 3.5 million acre-feet (4.4 km3).

Built by the California Department of Water Resources (DWR), Oroville Dam is one of the key features of the California State Water Project (SWP), one of two major projects passed that set up

California's statewide water system. Construction was initiated in 1961, and despite numerous difficulties encountered during its construction, including multiple floods and a major train wreck on the rail line used to transport materials to the dam site, the embankment was topped out in 1967 and the entire project was ready for use in 1968. The dam began to generate electricity shortly afterwards with completion of the Edward Hyatt Pump-Generating Plant, then the country's largest underground power station.

Since its completion in 1968, the Oroville Dam has allocated the flow of the Feather River from the Sacramento-San Joaquin Delta into the State Water Project's California Aqueduct, which provides a major supply of water for irrigation in the San Joaquin Valley as well as municipal and industrial water supplies to coastal Southern California, and has prevented large amounts of flood damage to the area — more than $1.3 billion between the years of 1987 and 1999.[10]

The dam has confined fish migration up the Feather River and the controlled flow of the river as a result of the Oroville Dam has affected riparian habitat. Multiple aims at trying to counter the dam's impacts on fish migration have included the construction of a salmon/steelhead fish incubator on the river, which began shortly after the dam was completed.

In February 2017, the main and emergency spillways failed, leading to the evacuation of 188,000 people near the dam. After deterioration of the main spillway largely stabilized and the water level of the dam's reservoir dropped below the top of the emergency spillway, the evacuation order was lifted

We encourage viewers to add comments and, especially, to provide additional information about our videos by adding a comment! See something interesting? Tell people what it is and what they can see by writing something for example: "01:00:12:00 -- President Roosevelt is seen meeting with Winston Churchill at the Quebec Conference." This film is part of the Periscope Film LLC archive, one of the largest historic military, transportation, and aviation stock footage collections in the USA. Entirely film backed, this material is available for licensing in 24p HD, 2k and 4k. For more information visit http://www.PeriscopeFilm.com

Reports:

Oroville Dam ready to withstand winter rains as first phase of repairs is finished, officials say

By Dale Kasler

November 01, 2017 12:34 PM

http://www.sacbee.com/news/state/california/water-and-drought/article182123271.html

The Oroville Dam flood control spillway has been fixed.

Eight and a half months after the gravest emergency in the dam's history forced 188,000 residents to flee, state officials said Wednesday that Oroville's structures have been largely rebuilt and can withstand a rainy Northern California winter. A second phase of work will be completed next year.

"Lake Oroville's main spillway is indeed ready to safely handle winter flows if needed," said Grant Davis, director of the Department of Water Resources, in a conference call with reporters.

Davis outlined further steps to strengthen Oroville and other dams around the state. California officials will undertake a broad "needs assessment" of Oroville, the tallest dam in America, with an

eye toward possibly building a second gated spillway to increase redundancy, along with other potential improvements.

In addition, Davis said "repairs and updates" are already being made at some of the 93 other dams around California where the state ordered intensive inspections in the wake of the Oroville crisis. He had no details on the repairs.

Reconstruction of Oroville Dam's main spillway as it neared completion in mid-October. The Department of Water Resources said Wednesday that phase has been completed and the spillway is ready for the upcoming rainy season. Randy Pench rpench@sacbee.com

Jeff Petersen, project manager for general contractor Kiewit Corp., said some construction will continue through the winter but the 700-person workforce is starting to dial back its hours. Reconstruction work will resume in earnest sometime next spring.

Kiewit won a $275 million contract to rebuild the main spillway and the adjacent emergency spillway, but DWR officials revealed two weeks ago that Kiewit's costs are likely to rise to $500 million. On Wednesday, DWR spokeswoman Erin Mellon said the $500 million estimate is "a ballpark figure" and the final tally is likely to rise. Adding to the final cost will be the expense of moving some power transmission lines, dredging the river channel below the dam and other functions.

The costs have risen in large part because the bedrock beneath the main spillway wasn't nearly as strong at critical points as originally believed. That required Kiewit to excavate deeper into the bedrock and lay hundreds of thousands of additional cubic yards of concrete. A similar problem sprang up at the adjacent emergency spillway.

Oroville Dam: Flyover shows just how huge this structure is as spillway repair continues

Oroville Dam in Northern California is the tallest dam in the United States at 770 feet. In this flyover showing the continuing repair work on the dam's spillway, you can see just how enormous the structure is. In February 2017, the main and emergency spillways failed, leading to the evacuation of 188,000 people living near the dam. Repairs are expected to exceed $500 million. The project is on schedule to finish pouring concrete on the main spillway by Nov. 1, 2017.
http://www.sacbee.com/news/state/california/water-and-drought/article180636126.html

Oroville Dam: Phase two begins, DWR says spillway ready for winter

By Risa Johnson, Chico Enterprise-Record

11/01/17

http://www.chicoer.com/general-news/20171101/oroville-dam-phase-two-begins-dwr-says-spillway-ready-for-winter?utm_content=buffere2e04&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer

Some construction continues Wednesday on the Oroville Dam spillway, the deadline set months ago to have the spillway ready if needed. Bill Husa — Mercury-Register

From the Department of Water Resources

November 2, 2017

The Department of Water Resources (DWR) today announced it has met its goal of repairing and reconstructing the main, gated flood control spillway at Lake Oroville by Nov. 1, 2017 to handle flows of 100,000 cubic-feet per second this winter.

Preparing the main spillway for the rainy season was a primary objective of the Lake Oroville Spillways Emergency Recovery Project, which has now completed its first phase after a massive construction effort that rebuilt and strengthened more than 2,270 feet of the 3,000-foot-long main spillway.

"Today is a truly significant day for DWR, our state, federal and local agency partners, and the contractors who have worked together so well to meet this critical milestone," said DWR Director Grant Davis. "It is also a very important day for the surrounding communities, and everyone who depends on the Oroville Dam facilities for flood protection. However, today is only a milestone and we have much more work to do before the project is complete, and we're eager to begin phase two."

DWR awarded Kiewit Infrastructure West Co. (Kiewit) the contract to reconstruct both the main and emergency spillways in April of this year.

"More than 600 Kiewit workers, many of them from Butte County and other parts of Northern California, have put in over 720,000 hours to date since May this year to help deliver the first phase of this very important project on schedule," said Jeff Petersen, Kiewit project director. "We take great

pride in the speed in which the entire project team has worked safely and productively to meet expectations. Our commitment continues to be to deliver the highest quality, most reliable spillways that the communities in this region deserve."

Earlier this month, DWR released an operations plan for the 2017-'18 flood season that will guide reservoir operations between November 1 and April 2018. The plan calls for DWR to maintain lower-than-average lake levels during the winter months to provide space for inflows and manage releases from the substantially reconstructed main spillway.

Phase 1 Completion of the Main, Flood Control Spillway

- *Reconstruction of 2,270 feet of the main spillway:*
  - *Placement of all reinforced, structural concrete slabs and walls is complete in the upper and lower chutes. This includes 870 feet of the upper chute and 350 feet of the lower chute of the spillway.*
  - *The 1,050-foot middle section of the main spillway chute is complete, with approximately 350,000 cubic yards of roller compacted concrete placed. This middle section will be completed to final design with a top layer of structural concrete in 2018.*
- *The top 730 feet of the main spillway leading to the radial gates has been patched and reinforced. It will be removed and reconstructed with structural concrete in 2018.*

Construction at the Emergency Spillway

- *Construction of the secant pile wall, or cut-off wall, downhill of the emergency spillway is scheduled to be complete by the end of January 2018.*
- *Crews have completed 50 percent of the secant pile wall.*

California launches overall safety review at tallest US dam

Posted 7:35 p.m. Yesterday

http://www.wral.com/california-orders-overall-safety-review-at-tallest-us-dam/17081657/

SAN FRANCISCO — California is launching an overall safety review of the nation's tallest dam to pinpoint any needed upgrades in the half-century-old structure, water officials said Wednesday, launching the kind of overarching review called for by an independent national panel of experts in September following the collapse of two spillways at Oroville Dam.

Experts from the national Association of State Dam Safety Officials and the U.S. Society on Dams concluded that state officials would have been able to catch the problems that led to the collapses if they had reviewed the 1960s' design and construction of the dam using modern engineering standards.

Federal, state and private experts will work on the comprehensive review of the 770-foot (235-meter) dam, said Joel Ledesma, deputy director of the State Water Project at the California Department of Water Resources, which operates the structure.

The Delta Tunnels

A shrunken Delta tunnels project? Decision time is upon California

By Jay Lund

Special to The Bee

October 26, 2017

http://www.sacbee.com/opinion/op-ed/soapbox/article181025431.html

A new option has entered the discussion of Delta water supplies: one cross-Delta tunnel instead of two.

For now, California's WaterFix proposal, pushed by Gov. Jerry Brown, is for two tunnels under-crossing the Delta for 35 miles, allowing up to 60 percent of Delta water exports to come from the main channel of Sacramento River. Implementing such a major project requires extraordinary political and financial support that so far is lacking.

Delta water users involved in WaterFix have failed to reach consensus on the project and how it would be funded. The Westlands Water District voted against funding the WaterFix and the Santa Clara Valley Water District voted for a scaled-back project. President Donald Trump's Interior Department offered an ambivalent statement on the project Wednesday, further adding to the confusion.

Under these conditions, the WaterFix project could shrink to become a single-tunnel state-only project supported mostly by urban water users and some Tulare basin agricultural contractors.

One 3,000-5,000-cubic feet per second tunnel would provide enough water for the Bay Area and Southern California. This option has clear benefits for cities and would reduce construction impacts within the Delta. The state could more readily justify subsidies to fortify Delta levees if these levees are needed to maintain through-Delta water exports.

However, one tunnel would leave most agricultural water users in the southern Central Valley dependent on the existing southern Delta diversions. These diversions provide poorer water quality and reliability and unnaturally reverse river flows, harming native fish.

Another twist is that many Delta land owners rely on water project pumping from the southern Delta to bring cleaner Sacramento River water to the central and southern Delta.

Solving Delta water supply problems for cities with a single tunnel could reduce urban involvement in finding solutions for the environment, Central Valley agriculture, and Delta levees. That could make solving overall Delta problems harder.

Take 'twin' out of tunnels?

By Alex Breitler
Record Staff Writer
Oct 29, 2017

http://www.recordnet.com/news/20171029/take-twin-out-of-tunnels

In the Delta region, the twin tunnels always have been considered double trouble.

If you take the "twin" out, you've still got trouble.

That's the view of many local activists as speculation grows that Gov. Jerry Brown's two-tunnel water conveyance project will soon be downsized, whittled down to perhaps just one tunnel with a smaller capacity.

A leading Brown administration official said last week that such a scaling back is "quite a possibility" if the $17 billion needed to build the full project isn't available. Right now, the effort is billions of dollars short because San Joaquin Valley farmers have declined to pay their share, which is nearly half of the total cost.

A smaller tunnel or tunnels could be built to serve primarily urban areas of the state like Southern California, the Central Coast and the Silicon Valley, giving them not necessarily more water than they receive today but a more reliable supply than what they get directly from the environmentally vulnerable and flood-prone Delta.

In a sense, the entire discussion about whether a smaller tunnel or tunnels is preferable for Delta communities is premature. The state has announced no changes, though Natural Resources Secretary John Laird has called downsizing a possibility.

"We're just all taking a deep breath," he told a group of Southern California business leaders Thursday. "We will have intense conversations with everybody that voted to (participate in the tunnels) about what project we can agree to that we move ahead on."

Highlighting Just One Aspect of California's Huge and Dangerous Water Infrastructure Deficit

While the repair of the Oroville Dam spillway has so far cost more than $500 million, and the total will probably be close to $1 billion, the entire water infrastructure system of the state requires hundreds of billions now. And that neither builds anything new, nor does it increase the water supply of the state.

The reports below on the state's levee system-- what it requires just to prevent a disaster like Houston just experienced and just what would be the damage with a major failure of the system.

This is what Sacramento looked like in the flood of 1862, and the damage from such a flood today is

almost unimaginable.

The Great California Flood of 1861-1862 was a series of four floods from Dec. 9 and 23-28, 1861, and Jan. 9-12 and 15-17, 1862. The winter rains started early in November and continued nearly un-interrupted for four months. Marysville and Sacramento suffered the worst damage in the Northern California valley. This scene shows the floodwaters along K Street looking west from 4th Street in Sacramento. Photo taken January 1862. Photo credit: California State Library

Flood experts say California levees need much more money

By Steve Schoonover, Chico Enterprise-Record |
October 25, 2017

http://www.mercurynews.com/2017/10/25/flood-experts-say-california-levees-need-much-more-money/

Sacramento – California needs to spend another $100 million a year to keep the state's levee system sound, according to state flood control experts.

At a press conference marking flood preparedness week Monday at a levee repair site near Sacramento, Bill Edgar, president of the Central Valley Flood Protection Board said the levees will need a $17 billion to $21 billion investment over the next 30 years to protect the seven million Californians at flood risk.

That number includes $130 million a year annually for repairs and maintenance, up from the $30 million currently spent.

Where the money will come from is uncertain. Edgar mentioned bond measures, and local, state and federal funds.

"Everyone is paying now," he said, "and everyone is going to have to pay more."

However an effort to get $100 million into the budget this year from emergency levee repairs was killed in the Legislature.

A massive storm flooded Houston. Experts say California's state capital could be next

The Washington Post

October 30, 2017

https://www.washingtonpost.com/national/a-massive-storm-flooded-houston-experts-say-californias-state-capital-could-be-next/2017/10/29/e48bf9ea-ae9f-11e7-9e58-e6288544af98_story.html?utm_term=.383ddce498ee

Models show a levee failure could submerge parts of this inland metropolis under as much as 20 feet of water. As Northern Californians are recovering from wildfires and sifting through homes reduced to ash, officials in the state's capital are struggling to prevent another type of natural disaster. Sacramento is more vulnerable to catastrophic flooding than any other major city in the United States except New Orleans, according to federal officials, a threat created by the city's sunken geography.

Levees and other flood defenses here and in the surrounding Central Valley have amassed up to $21 billion in needed repairs and upgrades, while Sacramento's population has continued to grow. Just days before Hurricane Harvey slammed into Texas and flooded Houston, a report from the California Department of Water Resources warned that "many flood facilities" in the Central Valley "face an unacceptably high chance of failure."

The population of California's mid- and upper Central Valley is projected to increase by 70 percent over the next 50 years, the August report notes. And some experts fear preparing the city for even a 200-year storm will prove insufficient.

"The 'Big Ones' are still out there for California, and a major storm certainly has the potential to be our next big one," said Dale Cox, a risk reduction manager for the U.S. Geological Service in Sacramento.

Although Sacramento averages just 18 inches of rain annually, large Pacific Ocean storms known as "atmospheric rivers" periodically strike the coast and settle over the nearby Sierra Nevada Mountains.

The storms can carry water vapor equal to "25 Mississippi Rivers," leading to torrential rain that can fall over snow-packed mountains, said F. Martin Ralph, director of the Center for Western Weather and Weather Extremes at the Scripps Institution for Oceanography.

In Sacramento, where the American River flows into the Sacramento River, 180,000 structures are at risk of flooding. In neighboring West Sacramento, population 50,000, every home and business is in a levee-protected flood plain.

If a levee were to break along the American River, which empties into the Sacramento River near downtown, water would start flowing into the city.

Although floodgates could be quickly deployed to protect downtown Sacramento from a life-threatening deluge, the water would eventually seep in from other directions, covering much of the area in several feet of water, said Roger Ince, a Sacramento emergency coordinator.

The water would continue flowing south and deposit more than 20 feet of water in the Pocket neighborhood, where about 20,000 people live in one- and two-story homes.

In 1862, a flood submerged hundreds of miles of the region for weeks. In Sacramento, California's governor at the time had to be rowed to his inauguration in a boat, leading to a new nickname for the region: "Inland Sea."

After those floods, local residents pushed dirt and sediment into mounds to form a crude network of levees. In the early 1900s, the 91-square-mile Yolo Bypass was built to divert excess water away from Sacramento and onto farms and marshlands.

But serious deficiencies in Sacramento's flood control systems were identified in the 1980s and again in 2005 after Hurricane Katrina swamped much of New Orleans. At the time, officials concluded that Sacramento-area levees probably couldn't withstand even a 100-year flood, an event that has a 1 percent chance of occurring each year.

In 2017, the total appropriation for its Flood and Storm Damage Reduction Program, which funds construction of levees, was just $1.2 billion. Yet hundreds of billions of dollars probably are needed to adequately bolster all of the nation's defenses against flooding, said Chad Berginnis, executive director of the Association of State Floodplain Managers.

Mierzwa said a recent survey found that Central Valley localities were only funding $30 million of the estimated $100 million in annual maintenance needs for flood-protection systems.

In a 2010 report called "Overview of the ARkStorm Scenario," more than two dozen scientists concluded that two back-to-back storms of similar strength could slam into California and submerge 25 percent of the state underwater.

"This isn't science fiction," said one of the authors, Keith Porter, a research professor at the University of Colorado at Boulder. "It's a very realistic scenario, and it could happen at any time."

Feature: The American Credit System

This week's report highlights some of the urgent elements of California's decaying and inadequate water infrastructure. This state used to be the model for the world, having the largest and best water management system on the planet. For that matter, by 1970 or so, the nation's water management system was the envy of the world, following three decades of great projects and entire region-wide building, led by presidents Franklin D. Roosevelt and John F. Kennedy. Governor Pat Brown should be included among such builders, for the California State Water Project was his accomplishment. No longer is that true. And as the American Society of Civil Engineers report earlier this year made clear, overall infrastructure deficit for the nation requires $4.6 trillion just for repairs.

Below are included a few articles focused on the paradox of the immediate necessity of hundreds of billions required to repair the damage from the hurricanes, the California fires and much more. One must smile as the Republican governor of Texas is demanding that tens of billions be put into his state now, with him having been part of the reason why about one tenth of the damage money wise that the hurricane die was never invested in the necessary flood control for Houston over the past decades. But, let us not express *schadenfreude,* but welcome him to the club. And as President Trump has repeated at least twice in recent weeks, the wet-dream about the Public-Private Partnerships of Wall Street will just not be an option.

So, how is that to be funded? As reported here for months, there is no simple solution, but there is a conceptual policy that can put us on the road to not just fix things, but to do what we used to do: Drive real economic progress with a focus on the frontiers of science and technology, while returning to the American Credit System as founded by the nation's first Treasury Secretary, Alexander Hamilton. Lyndon LaRouche has provided a summary conception of such a policy with his Four Laws of economic recovery. Here is a link to the document.
LaRouche's Four Laws

https://larouchepac.com/20170225/four-laws-pamphlet-larouches-paper

And here is a summary of his four laws:
1) Restore the Glass-Steagall banking law, putting the entire speculative Wall Street system into bankruptcy reorganization.
2) A return to a system of top-down, and thoroughly defined, National Banking.
3) The purpose of the use of a Federal Credit-system, is to generate high-productivity trends in improvements of employment, with the accompanying intention, to increase the physical-economic productivity, and the standard of living of the persons and households of the United States. That will be done by investing $2-3 trillion per year in the nation's infrastructure.
4) An aggressive policy of research and development of fusion power and a revitalized manned space program.

The LaRouche PAC economic class series:

Class No. 5 Bernhard Riemann and the Shape of Economic Space

https://action.larouchepac.com/2017-econ-class-series-fifth?utm_campaign=2017_econ_9&utm_medium=email&utm_source=larouchepac

November 1, 2017 — Over the period 1948–1952, Lyndon LaRouche made a series of discoveries in the field of economics. Key to his breakthrough was his developing a fuller understanding of Bernhard Riemann's 1854 Habilitation Dissertation, which re-defined the nature of geometry, physics, and the human mind. In this class, we take up Riemann's profound work.

And here are the links to the first four classes:
Class No. 1: LaRouche's Science of Economics is the Basis for US Joining the New Paradigm
https://larouchepac.com/20171004/class-no1-larouches-science-economics-basis-us-joining-new-paradigm

Class No. 2: https://action.larouchepac.com/2017-econ-class-series-second?utm_campaign=2017_econ_3&utm_medium=email&utm_source=larouchepac

Class No. 3: Physical Chemistry: Stages of Development https://larouchepac.com/20171018/class-no3-physical-chemistry-stages-development

Class No.4: Qualitative Change: What Number Cannot Measure

https://larouchepac.com/20171025/class-no4-qualitative-change-what-number-cannot-measure

Storm Infrastructure Issue Sharpens in United States; Texas Asks for $61 Billion

Nov. 1 (EIRNS)—On Tuesday a report of the Governor's Commission To Rebuild Texas confronted Congress with a request for $61 billion in new funds for storm protection reconstruction in the state, including at least $35 billion for major storm-protection infrastructure on Texas's Gulf Coast. The report was taken to Washington by Gov. Greg Abbott, who discussed it with the Texas Congressional delegation and then with the House and Senate Republican leaders, according to the *Texas Tribune* Nov. 1.

About a third of the funds requested are for housing restoration, but at least $35 billion is for Army Corps of Engineers work on the "Ike Dike" coastal barrier, other critical coastal infrastructure, "hardening" of the Houston Ship Channel against hurricanes, and other projects, the *Dallas News* reported today.

That would only begin to address the needed investments. The Texas Water Development Commission's comprehensive, 1960s plan for additional dams and reservoirs on the rivers flowing into Galveston Bay and the Gulf, and a coastal canal linking them, is not reported to be in the Commission's 300-page request as of now. Other plans, for stormwater capture and storage in aquifers—still in the feasibility study stage—have been passed by the Texas Legislature but vetoed by the Governor.

The Trump Administration and Congress have so far quickly provided $36.7 billion in hurricane recovery emergency funds for Texas, Florida, Puerto Rico, and the other states and territories that were hit. But with Texas making the first proposal for large-scale funds including investment in new economic infrastructure, action will become problematic. Florida, Puerto Rico, and the Virgin Islands will make critical infrastructure requests. The Congressional GOP "tax reform" obsession will delay the requests, and actually compete with them for new "budget deficit room" of which tax reform demands $150 billion/year.

These needs clearly demand a national credit institution whose major mission is to fund such large-scale new infrastructure needs, which require trillions nationally. LaRouche representatives have discussed a "Hamiltonian" national bank with many Members of Congress; but the most immediate opportunity for progress on it, lies actually in President Trump's upcoming meetings with President Xi Jinping of China and Prime Minister Shinzo Abe of Japan. Cooperative investment in infrastructure in the framework of the Belt and Road Initiative of China, will open up the potentials.

Trump Promises Infrastructure for Flood Control in Texas; Briefed in Dallas on Harvey Damage

Oct. 27, 2017 (EIRNS)--President Donald Trump spoke out on the need for flood-control infrastructure in Texas, after he arrived in Dallas for multiple events the afternoon of Oct. 25. His trip began with a briefing on the impact of Hurrican Harvey, and what's been done; followed by a Republican Party Roundtable and a fundraiser. Upon arrival at Love Field Airport, Trump met with Gov. Greg Abbott, Lt. Gov. Dan Patrick and other officials on Harvey and the region. "Trump said he was open to launching major infrastructure projects in the Houston area that are aimed at reducing flooding during future storms," reported the *Washington Post.* Saying, "I'm the building President; remember that," Trump spelled out, "Let's combat the flooding on a more permanent basis. Let's take a look at the costs and then see if it's possible to do, because that would save a lot of money into the future, and it would also put a lot of people to work."

Trump said that, had such infrastructure been built earlier, the damage and loss of life from Harvey would have been "perhaps almost nothing." He said, the state and Federal government should

see what can be done, because Texas does "get inundated and it's been going on for decades."

Trump got into specifics about rebuilding, commenting that greenboard is better to use in buildings, because it it more resistant than typical drywall. He said that it's, "a little more expensive than sheetrock," but in hurricane zones, it's worth it. There are some 300,000 homes and businesses in Texas, damaged or ruined by Harvey.

It is evident from Trump's remarks that Texas officials had proposed some new infrastructure projects to him, because he said he is, "interested in the concepts he's heard about so far."

Among the proposals that officials had raised in the early days following Harvey's devastation, are sea walls--the Ike Dyke and Coastal Spine, and more reservoirs, as in the Houston Flood Control District.

In recent weeks, state and local leaders fell back from the major-projects perspective, into a more limited mode of "recovery." Gov. Abbot has chastised the Texas Congressional delegation for not getting more funds for their state in the latest $36.5 billion Federal disaster relief funding. Trump has told the Texans--and Florida likewise, that more will come in November, in the next White House proposal for supplemental funds.

LaRouchePAC on Aug. 31, issued a Plan of Action, calling for full-scale coastal defense and a re-building of the region and nation to advanced levels of productivity, spelling out what this requires in the way of Glass-Steagall banking reorganization, a national bank, credit and mobilization. On Sept. 16, the *Houston Chronicle* ran an article on the need "to rebuild and fortify the Texas Gulf Coast to withstand the next destructive storm," by thinking big, the way that Jesse Jones did for vital projects, such as the Houston Ship Channel. Appointed by FDR, Jones led the Reconstruction Finance Corporation, to build "major bridges, dams and aqueducts across the country," including high speed trains.