

# California Water and Infrastructure Report

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



**For March 29, 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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*"Unleash to the greatest extent the huge potential of science and technology as the primary productive force ... and development supported by science and technology and oriented towards the future, and speed up the pace of building an innovative country."*

*President Xi Jinping-- June 9, 2014*

## **A Note To Readers**

The quotation above from President Xi Jinping summarizes what is missing in the economic and infrastructure policy of President Trump. His intent is clear: We must build and rebuild the nation as an industrial economy based on the most advanced science and technological frontiers, thus not only driving the entire economy to a new platform of productivity and creating a labor-force of skilled and creative people, but also to participate in the tremendous developments led by China's Belt and Road Initiative. That the President has not yet been able to articulate such a mission to the American people is a task the American people must help him to do.

The problem: Most of the American people today have never experienced a moment when our nation was unified to accomplish a great mission. It has been 48 years since the last of the Apollo Project landings of human beings on the Moon took place. Instead, with no national mission to orient people to reality, and an economy that has become little more than a Wall Street gambling casino immersed in a degenerate culture, the politics of the nation has become little more than a list of single issues defined by ideologues and other mentally handicapped people.

The American people may be angry, but it is usually misdirected. “He did it; no they did it; I hate liberals; I hate conservatives.” And on it goes.

It is time to be clear at what must be done. A national mission led by the science-drivers of fusion power and space exploration. Get that moving and all else becomes possible. Did you know that the abortion called the budget passed by Congress, despite itself, includes increased funding for both. See the item in the “News Briefs” near the end of this report.

Now a little quiz. Can you name the president who made the following statements? The answers are at the bottom of the last page of this report:

1) "We need to make a real breakthrough.... We will be creating new jobs and increasing the effectiveness of our economy, increasing the real income of our citizens, reducing poverty, developing infrastructure and the social sphere, education and healthcare, addressing environmental and housing problems, and we will continue to renovate and revamp small cities and villages. All of this should be based on a powerful technological breakthrough, which is yet to be made."

"It is high time we take a number of tough decisions that are long overdue. We need to get rid of anything that stands in the way of our development and prevents people from fully unleashing their potential. It is our obligation to focus all resources and summon all our strength and willpower in this daring effort that must yield results.

2) "First: Let us examine our attitude toward peace itself. Too many of us think it is impossible. Too many think it unreal. But that is a dangerous, defeatist belief. It leads to the conclusion that war is inevitable--that mankind is doomed--that we are gripped by forces we cannot control."

"We need not accept that view. Our problems are manmade--therefore, they can be solved by man. And man can be as big as he wants. No problem of human destiny is beyond human beings...."

3) “Over the course of these discussions, I've become more and more deeply convinced that the human spirit must be capable of rising above dealing with other nations and human beings by threatening their existence. Feeling this way, I believe we must thoroughly examine every opportunity for reducing tensions and for introducing greater stability into the strategic calculus on both sides....”

4) “We need a missile defense shield. And if we don't have one and if we don't start developing -- and now, you know, people used to criticize Reagan. The fact is, now it's very developable. And we need a shield.”

## **In This Week's Report**

Taking advantage of very little of importance occurring this past week in the arena of water, much of this report focuses on infrastructure, including some material that develops the more fundamental ideas and principles defining physical economy and the role of infrastructure in a healthy economy.

Otherwise, we do have the following:

Despite two weeks of serious storms, the snowpack still is not near the average for this time of the year, and little or none shall be expected for the rest of the year.

So, guess what? The drought is on.

Mexico has just broke ground on a new desalination plant in Baha California that will produce twice the amount of water that the Carlsbad does.

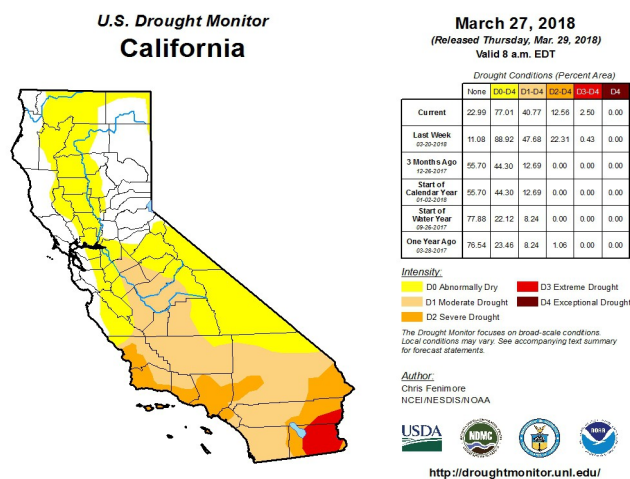
The section title Great Projects features a report entitled: “China's High-Speed Rail vs California's.” That is followed by “news items” on the economy and infrastructure.

The Feature this week are excerpts from a 2001 article by Lyndon LaRouche: “**THE SCIENCE-DRIVER PRINCIPLE IN ECONOMICS: The Gravity of Economic Intentions**”

## No March Miracle; the Snowpack; the Drought

### U.S. Drought Monitor

This week's drought monitor shows a mixed change. While the portion of the state in Abnormally Dry, Moderate Drought and Severe Drought declined somewhat, the Extreme Drought category increased, though by just two percent. But, that two percent, I think, tells us the direction we shall be going in the months ahead.



### *Spring storm does little to reverse California dry streak*

*A spring storm excited Southern California, but experts say it did little to change long-term drought conditions*

by Dennis Romero / Mar.23.2018

<https://www.nbcnews.com/news/us-news/spring-storm-does-little-reverse-california-dry-streak-n859386>

Parts of Southern California saw enough rain to drown a can of Coke as a system tapping an atmospheric river of moisture struck the region this week. But the hoped-for March miracle of enough precipitation to reach a normal year's rainfall looks unlikely.

Some forecasters went so far as to conclude that the rainy season is all but over.

Despite flooding in some areas, the United States Drought Monitor still categorized most of Southern California as under moderate or severe drought.

Storm totals for downtown Los Angeles, 1.02 inches of rain as of late Thursday, contributed little to the goal of a normal wet season — 14.93 inches — said Bonnie Bartling, a weather specialist with the National Weather Service. L.A.'s rain year — Oct. 1 through Sept. 30 — has so far produced 4.45 inches, and experts see little more en route as the driest months approach.

*"It looks like a one-hit wonder here," said Dave Samuel, a senior meteorologist at private forecaster AccuWeather. "This looks like our last big opportunity for widespread rainfall. We're looking at building heat and dry conditions across Southern California."*

*Even the Bay Area, which is officially far from drought status, is at only 66 percent of normal rainfall, National Weather Service San Francisco lead forecaster Duane Dykema said. Much of Northern California is "abnormally dry," according to the drought monitor, and Sierra Nevada snowpack and precipitation — the supply closet of California's water systems — is only a bit more than half of normal, according to the state Department of Water Resources.*

*"We're certainly in a much better situation than we were six weeks ago," says Stanford earth systems science professor Noah Diffenbaugh. "We've gotten a lot of help from recent storms, but the largest fractions of California are still officially in drought conditions."*

*Luckily, enough rain and snow fell in parts of California during the last rain season to ensure that drinking water supplies are ample, the Diffenbaugh said. "The most severe drought in California history ended with extremely wet conditions."*

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*But the long-term outlook isn't good.*

*"We could see a lot of hot, dry weather in April, May and June," said Samuel of AccuWeather, which runs models and historical statistics to create a long-term forecast. "Our spring forecast is for early summer weather. It could turn out to be record heat."*

## ***Sierra snowpack water content more than triples in a month***

By [Amy Graff](#), SFGATE

March 24, 2018

<https://www.sfgate.com/weather/article/Tahoe-Sierra-snowpack-survey-Miracle-March-12779204.php>

*A series of supercharged storms that blasted the Sierra in March has bolstered the snowpack that was alarmingly low before the start of the month.*

*The National Weather Service (NWS) in Sacramento [tweeted](#) Saturday that the water content of the snowpack has more than tripled in the past month.*

*On Feb. 22, an average of 4.6 inches was measured and on March 23 an average of 15.5 inches was recorded, going from 16 percent to 56 percent of the April 1 average.*

*Daniel Swain, a meteorologist at UCLA, [commented](#) on the NWS's tweet, "California's snowpack has experienced a pretty amazing recovery in recent weeks, which is great news! And yet despite the feet of new powder, stored snow water still remains far below long-term average--a testament to just how bad things were in February."*

## ***It wasn't a 'Miracle March' but here's why the NWS says it was still a 'miraculous turnaround'***

By [Alix Martichoux](#), SFGATE

March 27, 2018

<https://www.sfgate.com/weather/article/rain-bay-area-drought-level-forecast-san-francisco-12785626.php>

*It looks like it was nearly a "Miracle March" for the Northern California snowpack.*

*Is it time to celebrate? Not so fast for the Bay Area.*

*"March had a miraculous turnaround in just a few weeks where we saw substantial increases in Sierra snowpack and snow water equivalent," tweeted the National Weather Service in Reno.*

*The amount of precipitation Tahoe City received in March (12.3 inches) nearly matched the amount the city had received in the five months prior (14.3 inches). The [Sierra snowpack water content nearly tripled](#) in just 30 days, though it still only measures at 86 percent of normal in Tahoe and the Eastern Sierra.*

*But in the Bay Area, it's a different story. It's more like a mediocre March.*

*"I wouldn't call it a 'Miracle March' down here," said Brian Garcia, meteorologist with the National Weather Service in Monterey, which covers the Bay Area. "I say that because with a 'Miracle March' we would want to see rain totals getting us back toward 100 percent of the water year normal."*

*The water year starts in Oct. 1 and runs through the end of September. And right now, the Bay Area isn't even close to 100 percent of normal for the year.*

*At the beginning of March, the Bay Area was at about 50 percent of a normal water year's precipitation. The atmospheric river that brought weeks of rain to California only boosted that number by about 3 to 8 percent, depending on the exact location.*

## ***Despite Recent Rains, Santa Barbara Still In Drought Emergency***

*By Joshua Molina, Noozhawk Staff Writer*

*March 28, 2018 | 1:47 p.m.*

[https://www.noozhawk.com/article/despite\\_recent\\_rains\\_santa\\_barbara\\_still\\_in\\_drought\\_emergency](https://www.noozhawk.com/article/despite_recent_rains_santa_barbara_still_in_drought_emergency)

*Despite the recent heavy rains, the city of Santa Barbara still remains in a “[drought emergency](#)” and the federal drought monitor has worsened from moderate to severe.*

*The current 3-month outlook from the National Oceanic and Atmospheric Administration predicts below average rainfall for the Central Coast through mid-June.*

*Although there was above-average rainfall in January and February 2017 — and two big rain storms in January and March of 2018 — the average rainfall for the last six years still remains one of the lowest on record.*

## **Desalination**

### ***Giant Rosarito Beach desalination plant celebrated in groundbreaking ceremony***

*By Sandra Dibble*

*March 24, 2018*

<http://www.sandiegouniontribune.com/news/border-baja-california/sd-me-rosarito-desal-20180323-story.html>

*Saying desalination will guarantee the drinking water supply for future generations of Baja California*

residents, Gov. Francisco Vega de Lamadrid on Friday celebrated a groundbreaking ceremony for a desalination plant envisioned as the largest in the Western Hemisphere.

“On our peninsula, the best option is desalinated sea water,” Vega said at a ceremony held beneath a tent at the site of the future plant, adjacent to the President Juarez Thermoelectric Plant in Rosarito Beach. He called the planned facility “one of the great works” of the state, akin to the channeling of the Tijuana River or the construction of the Colorado River aqueduct that crosses the state

The planned reverse osmosis facility is a project developed and financed by an international consortium in a public-private partnership with the Baja California government. At full capacity, the plant would convert up to 100 million gallons of seawater a day.

Like San Diego, Baja California is heavily dependent on the Colorado River, which reaches Tijuana and Rosarito Beach through an aqueduct that crosses the state. The governor said the planned project would reduce the dependence of the state’s coastal regions on water from the aqueduct, and attract investment to the region.

The future facility is being envisioned in two phases. The first \$491-million phase is set to launch operations three years from now and produce 50 million gallons a day, the governor said. At full build-out, the plant would be twice the size of the Poseidon Plant in Carlsbad, and supply drinking water for some 2 million people.

## ***Santa Barbara Awarded \$10 Million Desalination Grant***

*By Madeline Wood for city of Santa Barbara*

*March 28, 2018*

[https://www.noozhawk.com/article/santa\\_barbara\\_awarded\\_10\\_million\\_desalination\\_grant](https://www.noozhawk.com/article/santa_barbara_awarded_10_million_desalination_grant)

*The city of Santa Barbara has been awarded a \$10 million grant by the California Department of Water Resources (DWR) to offset the \$72 million cost of reactivating the Charles E. Meyer Desalination Plant.*

*The desalination plant has been a permanent part of the city’s water supply portfolio since 1994, and in its reactivated state has been supplying water to city water customers since May 2017.*

*During reactivation, state-of-the-art technology and design practices were incorporated to minimize electrical demand and environmental impacts. The plant currently produces 3 million gallons of drinking water per day.*

*This is equivalent to 3,125 acre-feet of water annually or about 30 percent of the city’s demand.*

## **Great Projects**

### **Case Study: China's High-Speed Rail vs California's**

It is through great projects that a nation mobilizes itself for the mission of creating a future-- one that will provide what the nation and its people need 30-50 years ahead.

This week we feature China's High-Speed Rail Project. As the article below, “*China’s Magnificent High-Speed Rail System,*” makes the point, while China now has more than 22,000 kilometers of high-speed rail, the U.S. has zero, zilch, nada kilometers of actual high-speed rail.

And it is useful to compare China's system to the *so-called* high-speed rail project now being constructed in California. *So-called*, because the line will “reach speeds of up to 300 km per hour.” China defines high-speed rail as over 300 km per hour. In addition, it is to be a “blended system,” sharing track with commuter rails.

China began seriously to build their system about ten years ago. Not only is that system now more than 22,000 km long, but 2,000 km of track per year are being added to it.

It was also about ten years ago (2008) that California voters approved building the project that was to be about 500 miles (800 km) long, from Los Angeles to San Francisco. How much track has been laid in these ten years? Zero. Ground breaking did not even begin until 2015, and while the original schedule for completion of the entire system was to be 2029, the revised time table puts completion off until 2033. The project was originally designed to complete a section here and there and open them for traffic, but even those schedules are now delayed by years.

And now it is probable that the entire project will be canceled within the next year. Part of the revolt against the project is not only about the incompetent planning resulting in the years of delay, but also the skyrocketing estimated cost. Originally, it was suppose to be completed for about \$33 billion, but the latest estimate is the cost will now reach as high as \$98 billion.

Here is one link to an article on the California project: <https://www.cnbc.com/2018/03/12/californias-77-billion-high-speed-rail-project-is-in-trouble.html>

And here is a video, while full of “free enterprise” bullshit it does a good autopsy on the California project: [https://www.facebook.com/Reason.Magazine/videos/10155541007079117/?hc\\_ref=ARSGNYcSMBibRI8lfzsXfhFU4yIXTTfhYQCPOeROEj6NIFVB6i\\_-8Fsbz\\_1d7h5wGU](https://www.facebook.com/Reason.Magazine/videos/10155541007079117/?hc_ref=ARSGNYcSMBibRI8lfzsXfhFU4yIXTTfhYQCPOeROEj6NIFVB6i_-8Fsbz_1d7h5wGU)

Finally, this link provides all the detail you may want on the project: [https://en.wikipedia.org/wiki/History\\_of\\_California\\_High-Speed\\_Rail](https://en.wikipedia.org/wiki/History_of_California_High-Speed_Rail)

## **So, how is it that China can do high-speed rail right and the U.S. really cannot do it at all? Read on.**

Below are some excerpts from a the article by Michael Billington from the March 23, 2018 issue of *Executive Intelligence Review*. The link to the full article is here:

[http://larouchepub.com/eiw/public/2018/2018\\_10-19/2018-12/pdf/13-16\\_4512.pdf](http://larouchepub.com/eiw/public/2018/2018_10-19/2018-12/pdf/13-16_4512.pdf)

And here is an excellent video: [https://www.youtube.com/watch?v=\\_THGI7p3BPw](https://www.youtube.com/watch?v=_THGI7p3BPw)

### **China’s Magnificent High-Speed Rail System**

**by Michael Billington**

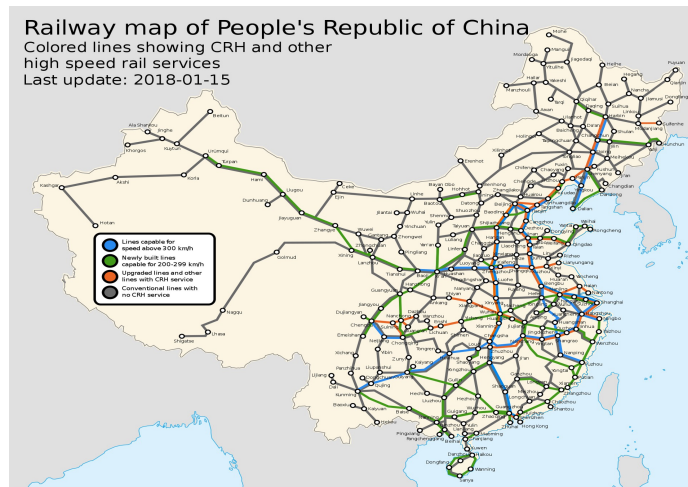
*Executive Intelligence Review*

March 22, 2018

That China has the most advanced and most extensive high-speed rail system in the world is well known. The Chinese system originally gained support and technology from Germany’s Siemens, France’s Alstom, Canada’s Bombardier, and Japan’s Kawasaki, but is now producing its own train sets of the highest quality. What is less well known are the numerous ingenious systems China has developed de novo in order to become the world leader in rail technology, and by far the largest and fastest producer of high-speed rail in the world. This includes production technologies, testing technologies, construction techniques, machinery, and more.



It is difficult to overstate the amazing scope of the system. As of early 2018, China has constructed 22,000 km of domestic high-speed rail track, which is nearly double the total for the rest of the world combined. Not a single kilometer of rail in the United States would be counted as “high-speed” by China’s standard—minimally 250 km/hr. (The Acela Express on the U.S. Northeast Corridor has a maximum speed, seldom attained, of just under 250 km/hr.) New high-speed rail is coming on line in China at the rate of 2,000 km/yr.



The fastest passenger train in the world, which also carries the most passengers per year, is the Beijing to Shanghai line. At 350 km/hr, it carries about 6 million passengers per year. The longest high-speed line in the world, to be completed in 2018, will run 2,230 km from Beijing to Guangzhou and Hong Kong.

The Beijing-Shanghai line was restricted to 300 km/hr after a major high-speed rail accident in 2011 in Wenzhou, Zhejiang Province, which killed 40 people and forced a re-evaluation and upgrading of the entire national system. In June 2017 the train sets running on the Beijing-Shanghai line were replaced by a higher standard system, fully designed and produced within China, called Fuxing (Rejuvenation), replacing the Xinhua/Wei WanzhongA high-speed train in Guangxi Zhuang Autonomous Region of China, called Fuxing (Rejuvenation), replacing the Hexie (Harmony) trains which were commissioned in 2008. In early 2018, the speed limit for this line was raised back to 350 km/hr, and could eventually be raised to 400 km/hr, making the 1,318 km trip in just over three hours.



As recently as the 1990s, the average speed of China’s trains was less than 60 km/hr.



A high-speed line from Lanzhou in Gansu Province to Urumqi in the far western Xinjiang Uygur Autonomous Region was opened in 2014, reducing the travel time from 21 hours to 8. Together with the New Silk Road Economic Belt, connecting China through Central Asia to Europe and Southwest Asia, this modern fast rail system has facilitated the development of the vast, under-populated far west regions of China, just as the opening of the first rail connection to Lhasa in 2006 facilitated the economic development of Tibet.

Only a few of the high-speed routes are currently profitable. Although over time that will change, it is not the top priority. Keeping prices reasonable to facilitate travel for all, to “serve the people,” is far more important to the government. During the Spring Festival, the 40-day period in which millions of Chinese return to their home towns, 385 million people were travelling in China, many on the high-speed rail lines.

But it is also true that this system creates a dramatic boost in the productivity of the Chinese workforce due to enhanced mobility, which more than makes up for the lack of short-term profits for the fully government-owned system.

## **The Economy, Infrastructure and Related Matters**

### ***Congress Does Its Job, Increasing Funding for NASA and Fusion***

*March 23, 2018 (EIRNS)--Late last night, the Senate passed the Omnibus FY18 budget appropriations bill, passed earlier by the House. The bill adds more than \$1 billion to NASA's budget, from the level in FY17, bringing it to more than \$20 billion. The bill restores funding to programs that had been slated for cuts by the Office of Management and Budget, including the next-generation astrophysics observatory, and planetary exploration, reinstates the Office of Education, and supports Earth science missions that had been canceled.*

*The appropriations bill also provides a life-saving increase in the magnetic fusion budget, to \$532 million, as compared to \$380 million in FY17. Funding for ITER is \$122 million, as compared to the \$50 million in last year's budget. For the domestic fusion programs, which have been savaged for the past few years, the funding is \$410 million, as compared to \$330 million in FY17.*

*The Congressional budget restores funding for earthquake research in the ShakeAlert program, to provide advance warning of an earthquake, and provides for increases in medical research and other science programs.*

### ***President Trump Speaks on Infrastructure in Ohio***

*March 29, 2018--President Trump today told an audience of construction workers in Richfield, Ohio, that the time was long overdue to invest in America's infrastructure and the workers who build and maintain it.*

*“In recent years, Americans have watched as Washington spent trillions of dollars building up foreign countries while allowing our own country's infrastructure to fall into a state of total disrepair,” he said. “Now is the time to rebuild our country, to take care of our people and fight for our great American workers.”*

*The President said that the country's infrastructure is “a total mess.”*

*“Nearly 40 percent of our bridges were built before the first moon landing. Clogged roads force the average driver to spend 42 hours every year stuck in traffic, costing us \$160 billion annually,” he said. “Our mass transit systems are dilapidated and decayed. Nationwide, we average 300 power outages*

*per year, compared to just five per year in the 1980s.”*

### ***The Federal Reserve and the Infrastructure Projects***

*March 23, 2018 (EIRNS)--With the Federal Reserve's increase of its Federal funds rate to 1.75% on Wednesday, and two more rate hikes planned, it has been calculated that the Fed will pay interest on excess reserves (IOER) of \$37 billion in 2018, to banks continuing to hold excess reserves at the Fed. These are overwhelmingly the Wall Street megabanks, London and other European megabanks, and the large U.S. regional institutions; and they still have nearly \$2.0 trillion in excess reserves at the Fed in the form of U.S. Treasury securities.*

*Thus the Fed will pay them \$37 billion this year not to lend out those excess reserves, but to continue using them as collateral instruments for speculative dealings.*

*\$37 billion would fund both the entire Gateway Project and the Poe Locks replacement all the way to completion; or, a new Baltimore Harbor rail tunnel and the entire Texas coastal flood protection and water management plan waiting for funding since 1968.*

*The Federal Reserve instituted IOER for the first time in its history during the 2008 financial crash. Even the two Republican leaders of the House Financial Services Committee, Jeb Hensarling and Patrick McHenry, repeatedly threaten Fed chairs at the Committee, that if it does not cease this practice, Congress will force it to. But the Fed ignores them; Wall Street still needs this "support"; and they have not tried to act on those threats.*

*The average interest rate offered to savers buying bank CDs has still not reached even 1%, being at 0.91% according to American Banker.*

### ***CCG Advised China on U.S. Trade: Set Up Infrastructure Fund, Bring U.S. Firms into Belt and Road***

*March 27 (EIRNS)—Stable U.S.-China trade should be based on joint economic initiatives, recommends the Center for China and Globalization (CCG), in a statement issued today. The CCG is advising Beijing to moderate its response to the punitive tariffs that the U.S. is considering. Instead of retaliation, CCG recommends 10 measures China should take to foster trade ties between the world's two largest economies. In addition to making adjustments, such as lifting excessive limits “especially on high-tech products from American companies,” the most important measures are:*

*“Consider the establishment of an investment fund to help the U.S. upgrade its infrastructure, capitalizing on China’s advanced technology and expertise in the field”; and*

*“Enlist the participation of American companies in Belt and Road projects as third party partners.”*

*In this way, the CCG states, China can “continue to adhere to the goal of long-term stable economic and trade relations between the two nations.”*

### ***On the U.S. Health and Welfare Collapse***

*Stanford University Professor Jeffrey Pfeffer has published a book titled **Dying for a Paycheck** that describes how reductions in wages, health benefits, and workplace conditions combined with increases in hours and job induced stress in a variety of ways has resulted in deaths in the United States. He and two "operations research" experts used what he calls a "meta analysis on all of the literature" to calculate that this amounts to 120,000 deaths per year. He debunks the popular "wellness programs" (meditation, yoga, anti-smoking campaigns) as having no impact on the problem. Despite the unreliability of his methods, it is clear that current labor practices impose a cost in human life and*

*economic effectiveness that should not be overlooked.*

*Another report from CNBC provides a personal look at the impact of rural hospital closures across the U.S. It reports on a now retired employee of a 25 bed rural hospital in Virginia. She is now a rescue squad volunteer. A typical 911 call requires her to drive 10 minutes from her home to an ambulance center, however long it takes to get to the emergency site, and 15 to 30 minutes or more to the nearest hospital. Some residents in her area are a four hour drive from a hospital.*

*The report highlights the impact of privatization on this collapse. The customer base in sparsely populated areas cannot support facilities that larger customer bases can. In the case described, financial difficulties (described as mismanagement by CNBC) resulted in the bankruptcy of a small chain of rural facilities. Only the more profitable of these were purchased by a new operating company.*

### ***Why Republican Ideologues Will Lose In November***

*March 25, 2019 (EIRNS)--Senator Lindsey Graham (R-SC) praised the \$1.3 trillion budget for its \$650 billion military component, but said that his real hope is to slash social security, medicare, and other "entitlements," and would have preferred a budget that included those reductions in the general welfare.*

### ***The Science of Ending Poverty and Geopolitics***

<https://larouhepac.com/20180326/science-ending-poverty-and-geopolitics>

*March 26, 20185*

*The only way to put an end to the current geopolitical nightmare of the British Empire's system and establish the political foundation for a durable peace, Lyndon LaRouche wrote back in March 1984 ("The LaRouche Doctrine"), is by ensuring: "a) The unconditional sovereignty of each and all nation-states, and b) Cooperation among sovereign nation-states to the effect of promoting unlimited opportunities to participate in the benefits of technological progress, to the mutual benefit of each and all."*

*One critical reflection of such progress, is the elimination of poverty and the inclusion of growing layers of the population in technologically progressive forms of production. Here, China has been leading the world over the last 35 years, reducing its poor population from 875 million in 1981, to 30 million today. Back in 1981, China had 46% of all of the world's poor within its borders; today that percentage has been reduced by an order of magnitude, down to 5%.*

*That process accelerated beginning in 2008, when the policy of constructing a network of high-speed rail corridors got underway in China, bringing industrialization and technological progress to every corner of the country. One result has been that poverty in China was reduced by a stunning 85% between 2008 and 2017—less than a decade.*

*With the launching of the Belt and Road Initiative by President Ji Jinping in 2013, that same driving force of development has now begun to radiate throughout the planet—the spread of the Spirit of the New Silk Road to which Helga Zepp- LaRouche frequently refers.*

## **Feature: How to Think About Economics and Infrastructure**

Following a few words from me are excerpts from an article originally published in 2001 by Lyndon H.

LaRouche. Economics, as LaRouche makes clear, has little to do with money, but is concerned with the relationship of mankind to the physical universe, and how through the discovery of the fundamental physical principles of that universe mankind is enabled to create technologies that give him increased control over nature and the universe as a whole. That is known as the principle of “progress,” a word that some are offended by, but it is progress that has allowed mankind to increase our population from a few millions, living not differently than wild animals, to more than seven billions today. And those seven billions have, if we fix the still not completed social and political structures, allow increased life expectancy, and the future of colonies on Mars and the rest of the universe.

Thus, below LaRouche discusses the principles of **Physical Economy**.

## **THE SCIENCE-DRIVER PRINCIPLE IN ECONOMICS:**

### **The Gravity of Economic Intentions**

by Lyndon H. LaRouche, Jr.

*Executive Intelligence Review*

Published March 30, 2001

[http://larouchepub.com/eiw/public/2001/eirv28n13-20010330/eirv28n13-20010330\\_020-the\\_science\\_driver\\_principle\\_in-lar.pdf](http://larouchepub.com/eiw/public/2001/eirv28n13-20010330/eirv28n13-20010330_020-the_science_driver_principle_in-lar.pdf)

Republished March 10, 2001

[http://larouchepub.com/eiw/private/2018/2018\\_10-19/2018-11/pdf/26-65\\_4511.pdf](http://larouchepub.com/eiw/private/2018/2018_10-19/2018-11/pdf/26-65_4511.pdf)

*(Excerpts)*

The question thus posed is: What intentions must be adopted now, to guide the world’s day-to-day policy-shaping in those new directions, which will foster achieving the needed growth in the world’s productive powers of labor, ten, twenty, thirty years ahead? What choices of medium- to long-term effects must we project, more or less reliably, from the decisions we make today?

To understand any economic process, an elementary distinction must be made between the two principal sets of relations which define a real economy, which is to say a physical economy, as distinct from a mere money economy. On the one side, we have mankind’s physical relationship to nature, as this is measurable in physical terms, per capita and per square kilometer of “macroeconomic” area. In the other aspect of physical economy, there are the sets of social relations within society, which affect, and largely govern the willful evolution of society’s practiced relationship to nature, per capita and per square kilometer. In relationship to a purely physical economy, money, paper or otherwise, comes into play, as a sometimes useful, as a necessary political fiction, in the physical organizing of the social relations within the economy. Paper money, issued as public credit, by a sovereign (or, worse, anyone else), remains always a mere political fiction.

The first step toward understanding how a real economy works, therefore, is to sort out those connections. All taken together, any economy is essentially a physical economy, and is an expression of a complex of intentions, as I have just previously described the use of the term “intentions” in the preceding pages.

On the matter of what might be called a “theory of money,” we must, as I shall indicate, derive the function to be assigned to money in a rational way. That is to say, that, in a sane society, it is the physical economy which defines the meaning and value of money; this is in opposition to those foolish people who attempt to derive economic processes as a secretion from one of those “ivory tower” concoctions called “monetary theory.”

From this standpoint, the functional relationship of the noösphere to the biosphere, is expressed chiefly as what macroeconomics views as basic economic infrastructure. This means, chiefly, the development of the land-area of a national physical economy as an indivisible unit of action, that over a relatively long-term period of not less than approximately a quarter-century, or even much longer. This apparently paradoxical principle of national-income accounting, is crucial; therefore, I elaborate the point I have just made.

### **Basic Economic Infrastructure**

From the standpoint of Vernadsky's outline, this development of basic economic infrastructure is expressed in two clearly distinguishable ways. In some actions, mankind's action simply improves the development of the biosphere as man finds it, as through the transformation of arid regions into biologically rich farmlands. In the second class of actions, man improves the variety of content of the biosphere, qualitatively, by adding to it new kinds of what Vernadsky calls "natural objects," adding to the repertoire of natural objects already produced by forms of life inferior to mankind. Such "natural objects" introduced to the biosphere as products of cognition, include transportation and power systems. Water management systems represent the combined effect of human promotion of the kind of natural objects already produced by the biosphere as such, combined with added elements which are natural objects of a type unique to the products of cognition. Urban development is chiefly an example of natural objects of cognition.

The development of educational systems, like the role of principles of Classical artistic composition, is a part of the essential infrastructure of the biosphere....

For reasons which I shall clarify at a suitable later point in this report, it is necessary to make a certain functional distinction between what is usefully designated as basic economic infrastructure, and other qualities of specifically economic activities.

Broadly, the distinction is, that basic economic infrastructure's development and maintenance, reflects a society's conscious sense of its government's unique responsibility for the economic and related potential embodied in the improvement of the land-area as a whole, and the population considered immediately in its entirety. Thus, these represent the accountability of the government for the promotion of the interest of the cause of the general welfare, as represented, inclusively, by the entirety of the land-area, per se, and the entirety of the population, per se. Thus, basic economic infrastructure is distinguished from that which, under the American System, usually falls within the province of private entrepreneurship, such as agriculture and manufacturing industry. There is, as I shall show in due course, a deeper distinction, but what I have just stated will suffice as a working observation at this juncture.

Usually, areas other than basic economic infrastructure, are associated with the application of man-made discoveries of universal physical principles and their derived technologies, to the design of products and productive processes. This is usually associated with an entrepreneurship of one or a number of persons, acting within the bounds of general law for the society as a whole, but on their own initiative. In general, functionally, the existence of the latter entrepreneurs is situated on the basis provided by the development of the society's basic economic infrastructure. Their potential is delimited by the quality of environment which the development of the basic economic infrastructure represents.

In general, an enterprise situated in an area with relatively poor development of basic economic infrastructure, has a lower potential than the same enterprise would represent, if situated in an area of better development and maintenance of basic economic infrastructure. The latter is typified as among the ultimately terrible errors in the recent decades' resort to "outsourcing" and "globalization."

Thus, in modern society, roughly forty to sixty percent of the total investment in development and maintenance of a healthy national economy, will be situated within the domain of basic economic infrastructure. Such development and maintenance of basic economic infrastructure will always be conducted under regulation by the society as a whole, and may be largely, even entirely an economic function of government. This is necessary, since only government has responsibility for, and authority over all of the land-area of the nation. Only the government of a truly sovereign nation-state has the competence to assume responsibility for the assured payment of debt-obligations incurred on the kinds of long-term accounts which the development of basic economic infrastructure incurs.

However, since the development and maintenance of basic economic infrastructure depends largely upon its own consumption of the products of production, both directly and indirectly, the investment in the development and maintenance of basic economic infrastructure, is a principal stimulant for the growth and maintenance of the level of output and productivity of the population and its production as a whole.

When we increase the availability of usable water, of sources of power of increased energy-flux density, of more rapid, more efficient transport of people and goods, we improve the available performance of each person in that society, even if no other change in their behavior is introduced. If we improve both sanitation and health-care, thus reducing the economic losses attributable to illness, impairments, and death, we increase the productivity of that society as a whole.

If, on the other hand, society's zeal to reduce the cost of goods to the lowest possible price, prompts it to cut back on both public expenditure for basic economic infrastructure, and also to eliminate regulation of this area to the effect of ensuring its development, then the average productivity of the labor-force will collapse, as a result of the lack of meeting the costs to be included in prices of all goods, and of developing and maintaining basic economic infrastructure.

The remedies exist, but they each and all depend upon predicating present action on confidence in a longer-term perspective. The use of the power of the sovereign nation-state to create national credit, is the indispensable means for organizing a process of general recovery from a catastrophe such as that of 1929-33, or the worse situation erupting today. This course of action depends upon mobilizing a passion in support of feasible programs which will not be self-sustaining in less than the medium to long term. On the basis of confidence in the prospect that such programs will become self-sustaining in their effects, government issues regulated credit to tide the nation and its people over, during the process of building up to a self-sustaining economic recovery.

It is the great projects of nation-building and space exploration, which will motivate today's imperilled populations into reaching to the future as a way of rising from the otherwise insufferable conditions which grip the present.

## **The Answers to the Quiz**

- 1) President Vladimir Putin, March 23, 2018
- 2) President John F. Kennedy at American University, June 10, 1963
- 3) President Ronald Reagan address to the nation March 23, 1983
- 4) President Donald Trump, in an interview with Wolf Blizer in 1999