THE SUN IS GETTING LAZY

Mankind Can Now Control The Global Water System

Part 2 of 3

So this is an interesting way to look at the proposal of the NAWAPA system, done in the '60s, which was to, with river diversion systems, divert 10-15% of some of these rivers up north, down into the Southwest, into the central part of the country (**Figure 6**). And this, I think, represents the highest level of managing an existing water cycle that anybody's proposed and developed in depth and had some real motion and some potential of actually becoming a reality.

And from the standpoint of the productivity measurements we were just talking about, if you take the amount of water that NAWAPA calls for, and if you bring that into the Southwest, we can now assume that that water will have the same productivity as Southwest water, which was five times higher. And then, again, it will exit the system, instead of running off in the North, it runs off in the Southwest, so it reenters the ocean. So without changing the fundamental input/output flow of our general concept here, we can actually increase the productivity of our entire continental water cycle, by these rough, first-order measurements, by 10-15%, which is pretty damned good if you're talking about an entire continental system.

This typifies the scope of managing an existing water cycle system: You have an entire continent; you look at the entire precipitation input, where it goes and the output of an entire continental system, and you say, how do we maximise the productivity and what this water does while it's in the system? Frankly, it'll probably be even better than these very rough, initial measurements, because this will bring new plant life; new plant life will increase the precipitation, as we saw—in the earlier graph, the plant life is one of the biggest factors in increasing the water cycle. So this represents a top-level concept of managing an existing water cycle.

Figure 6

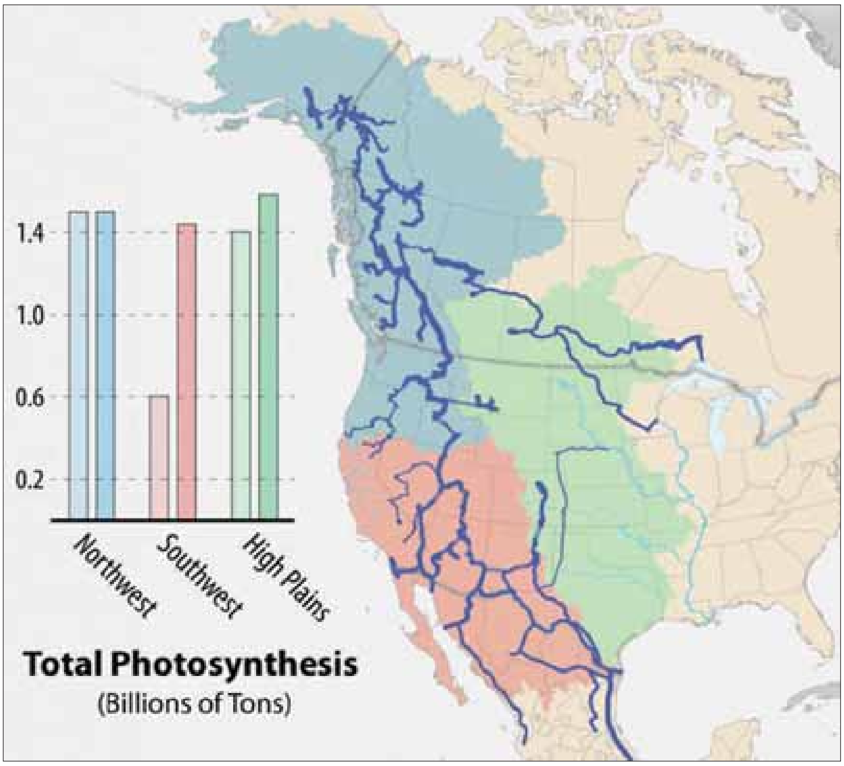
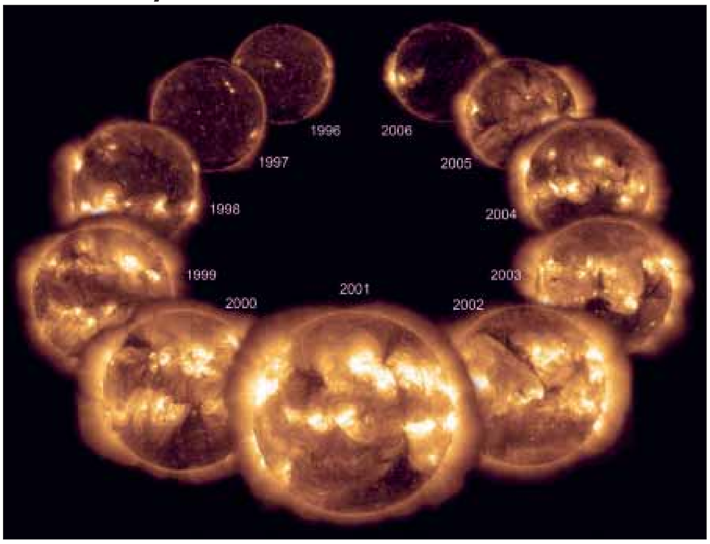


Figure 7

'The West Without Water'

But, in discussions over the past couple of months, when we really started to get a serious sense of how bad the crisis in the West is, and started to look at some additional factors, Mr. LaRouche put on the table the challenge of going to a higher level than this. Because everything I've discussed so far has some really specific assumptions being imposed on the way I presented this right here; we're assuming some very big things which you can't necessarily take for granted. The main thing is, all of this assumes you're dealing with pretty much a fixed system. All this is assuming that you have these standard input/output values, that maybe they change a little bit year to year, but you're assuming you can have a standard average for the whole system. You're assuming that the precipitation patterns, the amount of rainfall in the Northwest, the amount in the Southwest, is relatively fixed and stable. But we are beginning to realise that's absolutely not the case: Just take the Colorado River, for example: I just saw this study from a couple of years ago, from the Bureau of Reclamation, where they're looking at the water flow of the Colorado River (**Figure 7**). And they said, if you take the period from 1900-2000, this is a period when the major water projects in the West were built, and this is the period when you had the discussion of how to allocate the Colorado—how

Figure 8
The Solar Cycle

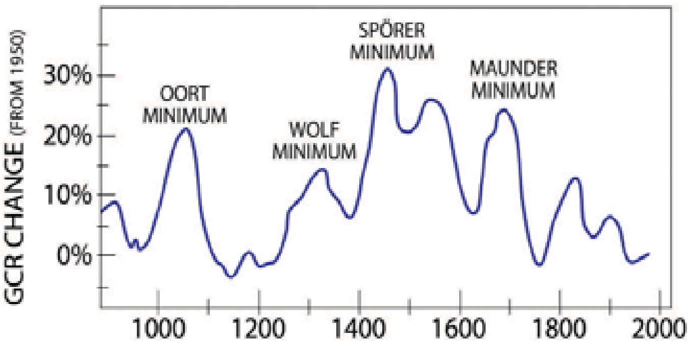


much to California, how much to Mexico, how much to Arizona, etc.—they were dealing with a flow of the Colorado of about 20 cubic km per year. If we didn't take any of the water at all, that's how much would flow out into the ocean. So they measure it in terms of that; but obviously, we take a lot of it, and at this point, it doesn't even reach the ocean most of the time. But the flow of the Colorado represents about 20 cubic km/year; that's the average they measured between 1900 and 2000.

But then, if they looked at between 2001 and 2011, this recent decade, it's only 15 cubic km/year—that's 25% less. This is a river basin that supports 16,000 sq km of irrigation, that supports 40 million people. And all of a sudden, this past decade, the water availability in this river basin is 25% less than what it had been over the past century! That's a very significant factor, especially for a region that's already stressed, and doesn't have enough water to start with.

Now, this coheres with something that has come up in a recent book, called *The West Without Water*, where a couple of professors looked at the long-term records of the water availability in the West, and by a number of different proxy records and investigations, they came to the conclusion that the water availability in California and the West over the past century has actually been much higher and much more stable, than a much longer period in the past couple thousand years. And that this

Figure 9
The Sun's Cycle Over 1,000 Years



Colorado example might be a perfect illustration of the type of thing we're talking about, where, when we built our irrigation systems, when we built our dams, our reservoirs, we built under the assumption that we had a certain availability. But it turns out, just by natural fluctuations, the value actually fluctuates much more, and we could have periods of much less, and prolonged periods of much less.

So, already, we know we can't just take the standard assumption that this is a fixed system, that how we've experienced it is how it's going to be in the future, and that we can just operate off that alone.

The Sun's Effect on Water Cycles

One of the major factors driving the changes of climate and precipitation patterns, is that pesky little thing out in the distance there, the Sun, the driving force of the whole Solar System. As we saw in the conceptual infographic at the beginning (Figure 3), the Sun drives the entire precipitation cycle. The entire continental water cycle is driven by solar activity. Plants may increase it, they may boost it, but if the Sun wasn't providing the initial input, they wouldn't be able to do anything. So it makes a lot of sense to ask, when the Sun changes, what is that going to do to our water cycle? What is that going to do to the precipitation patterns? What's that going to do to water availability?

We've gone through this in some shows in the past, so I'm not going to take too much time to go into details, but we know the Sun changes a lot. We know the Sun changes on a roughly decadal cycle, every 11 years or so (**Figure 8**). That's your standard, what we refer to as the solar cycle. But we also know that over a longer period, say, the past thousand years, as represented in this graph (**Figure 9**), the Sun goes through decadal changes over a series of many decades and over centuries. So, whereas each 11 years or so, you have one cycle of more activity/less activity, over a longer period, how active any of those cycles are, changes a lot.

We can measure that by records left by the amount of cosmic radiation, galactic cosmic radiation, coming from outside of our Solar System. The amount of that radiation coming from the galaxy, into our Solar System is affected by how active the Sun is. When the Sun is less active, the magnetic field is not as strong, and it doesn't shield this galactic cosmic radiation coming into the whole Solar System, including intersecting the Earth. So during periods of low solar activity, we have increased effects of cosmic radiation, so that's what they're measuring here.

Figure 10
Tibetan Plateau Precipitation and Solar Activity

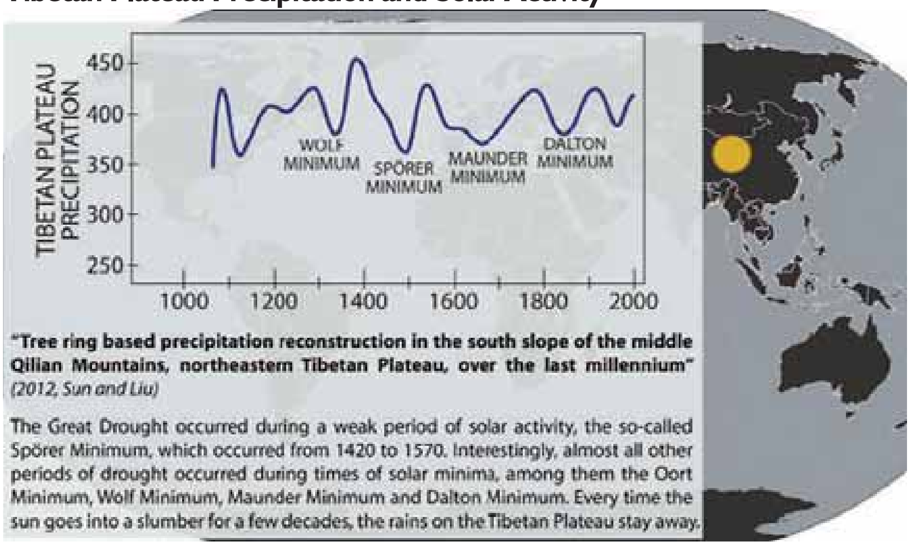
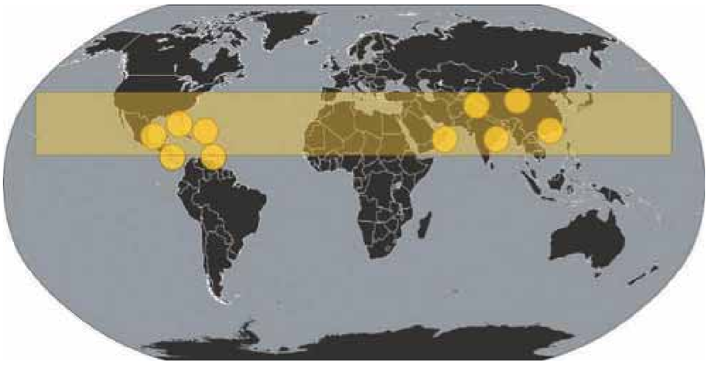


Figure 11
Low Water Flow in Several Regions During Weak Solar Activity



So what you have, is a series of these minimums. The most famous one is the Maunder Minimum, whereas when we look at the record of the galactic cosmic radiation, we see that it spiked, it went way up, which tells us that the Sun must have been less active, to allow more of this cosmic radiation to come in. And we see that that's happened periodically, every 200-400 years or so, you tend to get these periods of very low solar activity. These are generally called "Grand Minimums"—the Maunder Minimum, the Spörer Minimum, the Wolf Minimum, the Oort Minimum, these are a series of major solar minimums, and they've occurred over the past thousand years.

Now, what's come out in a series of studies, is that corresponding to these periods of "Grand Minimum" low solar activity, you do see significant changes in the precipitation patterns, in the global water/moisture cycle. Just to pull out a few of these, here's an example of precipitation in the Tibetan Plateau, measured against these solar cycles (**Figure 10**), and you see, every time you have one of these major minimums, you get a major drop in the amount of precipitation measured by these records in this one location in China.

You have multiple other studies, looking at other regions in Asia and South Asia, also showing a similar thing: During this Maunder Minimum period, this most recent period of major solar weakening, you had a weakening of the monsoon, less precipitation, less water available, corresponding to lower solar activity. Similar things measured in the Yucatan Peninsula, increased drought, less water available, during the Maunder Minimum period. Multiple other studies in the Caribbean and Central American regions, three other studies looking at different areas, again, showing the same thing, drier conditions generally corresponding to this weak solar activity period.

And then just a quick plotting of a number of these studies (**Figure 11**): Here you have 5, 10 studies in different regions of the planet, all corresponding to lower water flow, drier conditions during periods of weak solar activity. Other regions of the globe—I'm not going to go into all the details here—show different responses: In the north, it tends to get colder during periods of low solar activity. Multiple studies, Russia, England, Europe, all indicate cooling during weak solar activity. In the Equator, specifically, there are studies that indicate you might get more rainfall. So some people theorise that perhaps, for some reason, during periods of weak solar activity, the atmosphere system isn't able to move tropical moisture north and south as much, into the subtropics, which is indicated by this yellow band here.

That's one theory, there might be more things involved; but the point of all this is, we have these records of the West in California, we just talked about the Colorado River being 25% less than it was—this is all during a period when the Sun hasn't been doing a whole lot of changing. Now we have indications that the Sun very likely could be heading into a major weakening period, of the type we haven't seen in least 200 years, perhaps of the type we haven't seen in 400 years. And we have many indications that this type of major solar weakening does have dramatic effects on the precipitation patterns, on moisture flows, on temperature, on climate.

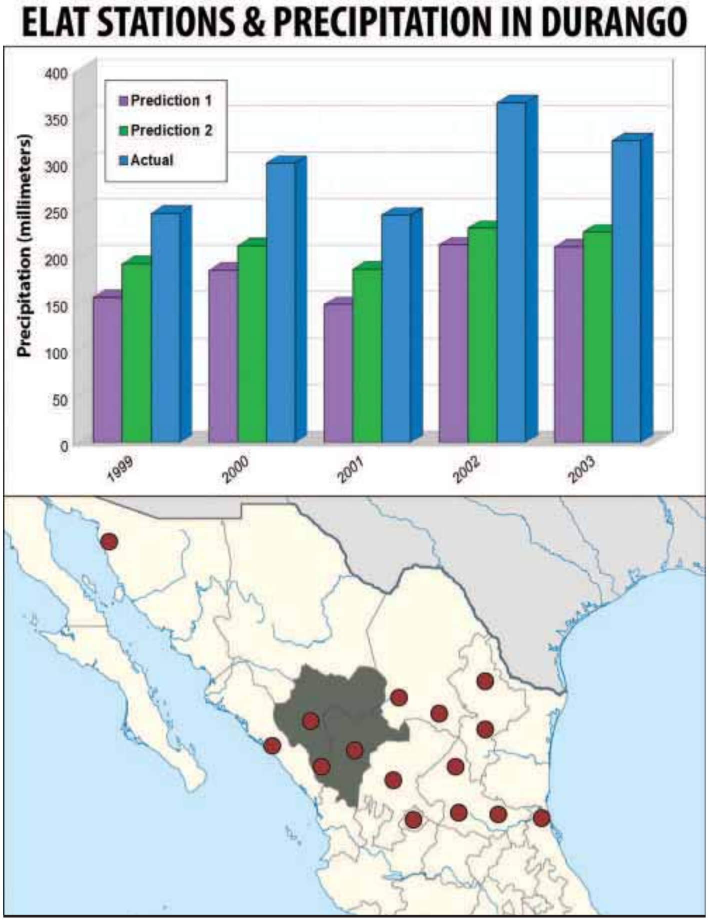
So we are very, very far from a fixed system we're dealing with. We can't just take some fixed value of input/output, some fixed idea of where the water falls and where it doesn't, and just build a system simply off that. Because we have indications that these things change, they can change dramatically, and they can change on a timescale of decades.

Weather Modification/Ionization

So we need to go, as Mr. LaRouche challenged the "Basement" team, to a higher level of addressing the global water crisis. And we've gone through some of this—I'm going to do this kind of quickly—but one major thing is, weather modification with these ionization technologies. We went through this in detail a few weeks ago in a couple of these shows,[2] but there are systems that have operated in Mexico for a number of years which have significantly increased the rainfall, through a method of increasing the ionization of the atmosphere, a process that was able to help draw in moisture from over the oceans, and induce atmospheric moisture to condense and form as rainfall (**Figure 12**). We've had significant evidence that these things have been quite successful in Mexico over the past decade.

There were smaller-scale, but very significant studies done

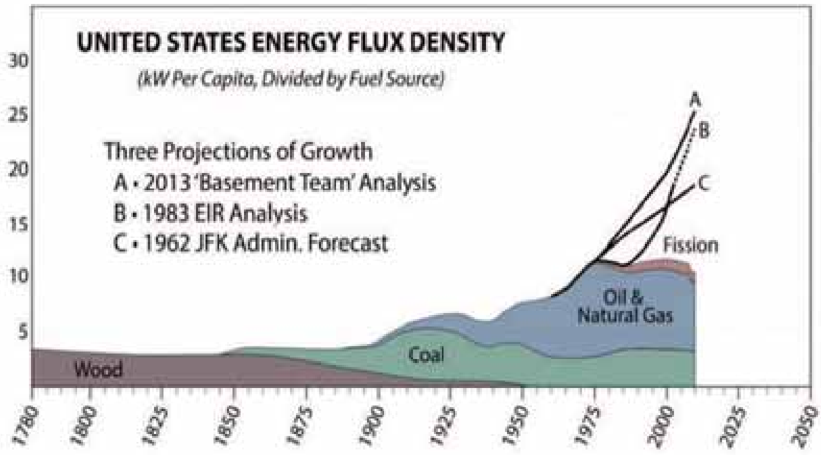
Figure 12



Footnotes:

2. See "Beyond NAWAPA: Controlling the Weather: Ionizing the Atmosphere," *EIR*, May 30, 2014; and New Paradigm, May 14, 2014.

Figure 13



in Australia, with similar technologies, which showed that you can increase the precipitation with these types of systems. Another company, Meteo Systems, has done similar activity in the United Arab Emirates, and also recently there have been some papers on new activity in Israel with these types of systems. So we have an indication that mankind can begin to actually modulate and manipulate flows of moisture in the atmosphere, and we can begin to control when it falls and where it falls, which obviously would be a critical handle on the types of changes that we were just talking about. If we can't assume that the natural precipitation patterns and moisture flows are going to remain the same, but that they're going to vary with solar activity, and vary with other natural fluctuations, then how can we give mankind a grasp and influence over controlling where those moisture cycles go? Controlling where the precipitation patterns occur? And we definitely have at least one avenue to investigate with these ionization technologies.

There are more things that should be looked into: It should be put as a real challenge to nations, if we're going to have security over our water, we need to begin to look at how to have an influence on climate, on precipitation, on weather, beyond just playing around with cloud seeding, but looking at more interesting—specifically in the electrical and ionization direction—you're looking at more of these electrical and magnetic properties that you can begin to play with.

Energy Flux-Density and Desalination

The other significant input that will have to be dramatically accelerated, is desalination, converting salty ocean water to freshwater. Now, again, we live in a context where there have been 40 years of no progress. Kennedy was talking about major desalination systems, large-scale systems, saying with nuclear power desalination, we could begin to address all of our problems with these things. That was just cut off, and we've sat with no progress for 40 years. So, unfortunately much of the discussion around desalination is very pessimistic, "it's too expensive, it's too energy-intensive, it's too difficult," which is just a load of junk.

I was looking at, again, some back-of-the-envelope calculations, and one way to look at this, is with Mr. LaRouche's concept of energy-flux density, and one way you can look at the energy-flux density of a national economy, is by the power per capita, the energy consumed per year per person, average for your whole nation. This doesn't just mean how much energy do I use in my home every day? It means, how much energy is used to power the industries, to provide the food, to transport my food, to power the servers that my computers use? How much energy is used for the national economy as a whole, and then, what's the per-capita value of that?

And we've seen, over the history of the United States, for example, with the succession of higher levels of energy sources, with more energy-dense forms of fuels, we've seen this continual growth in the energy use, in the power per capita of the U.S. economy.

But then again, as we just discussed, you see the stagnation, the flat-lining, and the collapse, starting around 1970, when nuclear power was not allowed to be developed, and fusion power was suppressed, dramatically. So, instead of the natural growth process which should have and would have occurred, we've had this flat-lining. Here's an example of a few projections of the energy-per-capita growth estimated by the Kennedy Administration (**Figure 13**), the "C" value, there; our own estimate of "A," if we had a full fission and then a full fusion driver-program, we would expect something more in the range of 20-25 kW per capita, now we're at 10. *Executive Intelligence Review* did a study which showed similar results around the '80s, when they were looking at what would the SDI, Mr. LaRouche's Strategic Defense Initiative program, have done to drive the whole economy forward?[3]

So if you look at energy-flux density, energy per capita, you look at where we are now, and where we should be, and where we need to go in a healthy, growing economy, and then, if you look at desalination from that standpoint, it's actually relatively little. We're now at about 10 kW per capita, 10,000 W per capita. If we were to provide all of our water use with desalination—everything except for cooling of power plants, because you wouldn't need [freshwater] just to cool power plants—but water use for mining, for industry, for agriculture, all agricultural water use, water use for your domestic and public supplies; all of the water use in the United States could be provided with about 325 W per capita for desalination. Right now, we're at about 10,000 W, or 10 kW; this would be about 325 W per capita, so one-thirtieth of our current per-capita energy use.

To put that into perspective, we have a total use of 10,000 W per capita; we average about 3,000 W per capita use, just for transportation, on average. So what we accept as the regular cost of moving ourselves around, moving our food around, just transportation needs, is almost a third of our per-capita energy use as a national economy. If we wanted to provide all of our current water use from desalination, it would be onetenth of that.

So when you look at these relative scales, it's not necessarily a whole lot. And obviously, we don't need to replace all of our water use with desalination, that's not what we're saying we need to do, but just to put it into perspective; relative to even the existing levels it's not necessarily a whole lot. If we'd gone to 15, 20, 30 kW per capita, with a full-fission/full-fusion economy, you could physically afford these types of things. Your relationship to natural resources is completely different: We're now at an energy-flux density level of our national economy where you can afford, on a large scale, to provide water to do these types of things, with desalination, with weather modification, with these types of systems.

To be continued...

Footnotes:

3. "The Economic Impact of Relativistic Beam Technology," June 15, 1983; *EIR* Research Inc.