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**Civics 101**

**Episode 124: Infrastructure – Water!**

**Hannah McCarthy:** [00:00:00] Civics 101 is supported in part by the Corporation for Public Broadcasting.

**Theme:** [00:00:04] Civics, civics, civics, 101. .

**Nick Capodice:** [00:00:08] Is it potable or potable?

**James Salzman:** [00:00:11] I say potable. .

**Hannah McCarthy:** [00:00:12] OK So do we. I feel good about that.

**Hannah McCarthy:** [00:00:14] But I also say potato.

**Nick Capodice:** [00:00:15] Well, let's just call the whole thing off.

**James Salzman:** [00:00:20] Touche.

**Hannah McCarthy:** [00:00:21] you're Listening to Civics 101. I'm Hannah McCarthy.

**Nick Capodice:** [00:00:23] And I'm Nick Capodice.

**Hannah McCarthy:** [00:00:24] And On today's episode water.

**Nick Capodice:** [00:00:26] Yes. How and why is the government involved in delivering water in the United States? .

**Hannah McCarthy:** [00:00:30] What Is the infrastructure involved. What are the policies?

**Nick Capodice:** [00:00:33] And how did it get that way?

[00:00:38] [Montage: Water is Life! Water is Life! By Diverting the river from its course we have lost the Colorado Delta. Flint still doesn't have clean water.].

**Hannah McCarthy:** [00:00:42] To Answer these questions. We spoke with James Salzman who wrote the book Drinking Water: A History. .

**Nick Capodice:** [00:00:53] James Salzman also goes by Jim he's a professor of environmental law at UCLA School of Law and the Bren School of Environmental Studies at UC Santa Barbara and he's on the national drinking water advisory committee under the EPA. All right. All right. Jim welcome to Civics 101. .

**James Salzman:** [00:01:11] Happy To be here. .

**Nick Capodice:** [00:01:12] So I guess to start out can you explain to us what is water infrastructure what are we talking about nationally. .

**James Salzman:** [00:01:19] Sure. Water basically has to has two major major uses that we care about. From an economic perspective and as a third use that's important as well. The first is the drinking water. We need. We need water to survive and so that sort of municipal water generally. And that obviously has to be treated. So it's safe to drink. The second broad category is agriculture.

**James Salzman:** [00:01:44] In fact about 80 percent of the water that we consume the United States is used for agriculture primarily irrigation 80 percent roughly. Yeah yeah. The last category of water that's important is what's called in stream flow or environmental flows and that's the water actually that we keep in the river. And you asked me water that we use. You know why am I mentioning instream flows. Well if we take out all the water and use all of it then there's no water for the fish and the and the the aquatic ecosystems. So they all they're all part of the same mix. It's the water that we use. And ironically the water we don't use. People talk about the infrastructure crisis with roads and with bridges. It's no different than with drinking water. Let me let me give you some interesting statistic statistics. So there are over a million miles of water pipe in the country. All right there are roughly 240000 line breaks every year. Every day about 42 billion dollars of water is treated and moved around the country. The number is inexact but they think about 6 billion gallons are lost to leaks. All right so the American Waterworks Association AWWA they have basically they come with these estimates for what the investment needed to basically maintain and improve the infrastructure of the next 25 years. And their numbers come close to a trillion dollars. .

**Nick Capodice:** [00:03:15] Is this because our infrastructure is getting old and breaking. Or is it because. Do we have the technology and the money to just create a new this old infrastructure?

**James Salzman:** [00:03:24] Well the technology is not that hard it's pipes right. The problem is I mean in D.C. there are some pipes that were laid right after the Civil War. Right. Drinking water is very much out of sight out of mind. .

**Hannah McCarthy:** [00:03:36] All Right. Is That because it would just be totally unfeasible to place whole systems around a municipality for example?

**James Salzman:** [00:03:44] Well it depends how much you want to pay. So there are. Get ready for this. One hundred fifty one thousand public water service providers in the country. A small number of those provide the vast majority of the water are those municipal water systems. But the fact is there are you know close to 100000 systems that serve 8 percent of the population. These are very small systems and they're poor in the sense that many of them are in poor areas or they're underfunded. It's a big challenge .

**Nick Capodice:** [00:04:16] When We're talking about drinking water. We're talking about the water that comes out of our taps. We're talking about water fountains. We're talking about all that stuff and Hannah had a story actually that's sort of related to that I wonder if you could. .

**Hannah McCarthy:** [00:04:29] Yeah so I was in the hallway filling up my water bottle at the water fountain here at the station and someone walked by .

**James Salzman:** [00:04:36] Very virtuous

**Hannah McCarthy:** [00:04:38] right. And he said Well you know you're really brave to be filling it up with the water fountain we've got filtered water in the kitchen. And I thought to myself oh well I thought you know that's ridiculous. The water has to be safe to drink. It has to be potable but then I kind of second guessed myself. I don't know for sure whether or not the government or a municipality is obligated to provide potable drinking water. Are you able to answer whether or not they are?

**James Salzman:** [00:05:07] I am I am drinking water is my thing. So here's how it works. So there is a law called the Safe Drinking Water Act was passed in 1974. And it's a nationwide law this centrally sets the standards and obligations for how water is provided to any system that essentially serves more than 25 people. So clearly the tap water you were using in essentially the drinking water system we have in the U.S. is sort of triple redundancy. The most of the work is actually done locally by the water treatment plant. They're the ones who actually treat the water make sure it gets to you. They're the ones who are testing the water on a required periodic basis. They're supervised by the state, equivalent to the state EPA who are supposed to look over them and make sure they're actually complying with the laws and the standards so that the Safe Drinking Water Act the federal EPA sort of looks over the shoulder of the state. They said what are called the maximum contaminant levels for roughly 90 different classes of contaminants and those are the standards of local treatment plants need to meet. And so the fact is that I can go anywhere in the United States and drink water from the tap without being concerned about it. That certainly is not the case in many parts of the world and frankly 100 years ago that wasn't the case anywhere. Now I have to add the Flint story is deeply disturbing at a lot of levels because essentially the triple redundancy broke down at every single level.

[00:06:39] The local producer screwed up. The state screwed up and the EPA screwed up. .

**Nick Capodice:** [00:06:44] What Is what. How could this happen in Flint?

**James Salzman:** [00:06:47] My view is that essentially the public agencies lost sight of who the public is. It is a very disturbing e-mail that came out from a FOIA request a public records request of the regional EPA where the EPA officials said something along the lines of I'm not sure Flint is the kind of community we want to go out on a limb for. And so it really it's a very disturbing very disturbing episode because as you mentioned earlier in this podcast you don't know that the water coming out of your tap is safe to drink. I'm a drinking water expert and I don't know. You have to trust utility to do the right thing. And in my view you know more than 99 percent of the time that actually happens. I have a lot of faith in the integrity and the performance of public utilities around the country in terms of drinking water. But Flint is a very serious reminder that you have to be vigilant.

**Nick Capodice:** [00:07:42] Do you have any hope for the future of when Flint will get clean water how that can happen?

**James Salzman:** [00:07:47] Yeah I mean the government the federal government has pumped in tens of millions of dollars to replace the lead service lines. And there was all kinds of bottled water that was provided as well. It's an infrastructure issue because many parts of the country have lead service lines. In fact the irony is that blood service lines were actually required by law in Flint until the 1980s.

[00:08:08] The challenge is it's going to cost 20 to 30 billion dollars to replace the lead service lines around the country. And this is part of a larger thing you want to talk about which is that you know money is short when it comes to drinking water infrastructure. .

**Nick Capodice:** [00:08:30] So I guess now will be an OK time to get to. How did we get here in terms of water infrastructure nationally since we were created as a country. How did we get to where we are now?

**James Salzman:** [00:08:41] Sure so the drinking water issue obviously has been of central importance ever since we've had settled cities that settled communities communities not gonna last very long if people are getting sick all the time. Seriously sick all the time from the water. So the approach basically New York City having tells the best example settled by the Dutch. The English come in and they started basically taking use of some shallow wells in this place called the collect which is about 32nd andt Broadway that got quite polluted. Over time as New York City urbanized. They basically realize that the water was getting polluted and it was insufficient and then the turn of the century you get this crazy story where Aaron Burr and Alexander Hamilton the Broadway stars they team up and they formed something called a Manhattan Company. And Aaron Berg goes up to Albany to the legislature and convinces them to give the Manhattan company monopoly to provide pure and wholesome water to New York City. And the idea is that they're going to pipe water in from the Bronx.

[00:09:46] It turns out that Aaron Burr was a scoundrel as comes out in the musical and he had no intention of getting water from the Bronx he basically just piped water in from this gross place called The Collect. And instead what he did was the charter gave him the authority to raise two million dollars in funds. He wanted to start a bank without the strictures of a bank charter and so he basically raised the two million dollars and then lent it out at interest in this company. Over time became a Chase Manhattan Bank. .

**Hannah McCarthy:** [00:10:16] So The whole water thing was a construct was a racket in a way he did provide water but it was just a way for him to ultimately create this bank. .

**James Salzman:** [00:10:25] That's Aaron Burr .

**Hannah McCarthy:** [00:14:02] He is a scoundrel. .

**James Salzman:** [00:10:28] And So the basically 1830s the state and city finally step in and have been a public water. And so essentially by the 19th century mid 19th century all of the major cities in the U.S. had public water systems. But even into the early early 1900s, it's not uncommon for people to die of typhoid cholera or other waterborne diseases. And so the big shift is with the chlorination of water. OK. In the early 90s hundreds and that's done through the Interstate Commerce Commission. They basically passed this rule that all interstate common carriers buses trains ferries have to have chlorinated water. And so basically any where any of these transports stopped any of the towns they had to have chlorinated water so they could basically provided for the interstate carriers. And that was sort of the backhanded way that we got water chlorinated in the U.S.

**Nick Capodice:** [00:11:26] And What about water rights in the West versus East?

**James Salzman:** [00:11:29] Think of the thing that's that that's key in talking about water on the East Coast where on the west coast is agriculture and big cities. There was enough water for drinking on the west coast but there wasn't enough water for large urbanization and large agriculture. And the story starts essentially in the mining towns in the 1840s, 1850s, where the folks who were doing the mining after the gold rush were practicing something called hydraulic mining where they literally would get these high powered hoses and blast away whole mountainsides. So an East Coast the legal tradition was called riparian rights and what it means is if your own property alongside the river or the body of water you are right period Holder. That gives you the right to use the water that doesn't work with mining camps. You want the right to use the water if you're actually quite distant from the water source and so this new system is basically created in the mining camps it's known as prior appropriation and the basic rule is first in time first in right. And so basically these early sort of agriculture agricultural settings farms districts they used a lot of water. And one of the downsides to prior appropriation is this notion of use it or lose it. So if you stop using as much water for a period of time after several years your water right is reduced and so the system actually encourages inefficient use of water. .

**Hannah McCarthy:** [00:12:55] Are We currently in that situation?

**James Salzman:** [00:12:58] We are more or less. You know people say we're running out of water in the West. People who study the issue that's not really what's going on. We have a water crisis in the West but it's a water management crisis. There's enough water to go around. The problem is we don't manage how we move it very well. We're growing alfalfa and cotton in water scarce areas and they do it because they can. .

**Hannah McCarthy:** [00:13:22] What Do you see as challenges to our water system. Aside from the breakdown of this infrastructure itself in terms of increasing scarcity or maybe the way that we're currently treating water how fracking may influence our water sources what do you see as the the major possible problems?

**James Salzman:** [00:13:40] Yeah that's it's important it's an important question and I think there are three categories of things we need to be really watchful for are going forward. The first one is what you mentioned which is infrastructure. All right we are under investing in our water infrastructure and we're paying for it. The second concern is contamination of source waters. You mentioned fracking. There are other potential containment sources as well. Fracking is a fairly complicated story and it's regulated S.A. at the state level rather than the federal level. There was a, Dick Cheney lobbied for an amendment in 2005 that prevents the EPA effectively from regulating fracking around drinking water. But it's not just fracking that poses a challenge. There are whole classes and this sort of moves into the third the third category. There are whole classes of contaminants that are in drinking water right so any water you drink whether it's bottled water or or from the tap is going to have 40 to 60 different medications in them. They're extremely low concentrations. Right the equivalent of an eye drop within three or four Olympic swimming pools. But it's there.

[00:14:58] And you know if we as a society do not want to have you know traces of meds in our drinking water we can get them out. But it's expensive. And the question is is that is it worth paying for that. I mean I do want to emphasize that I feel like a lot of my answers are ending with you same kind of Obama don't think that way. Right. The first that we have for drinking water are the United States is a modern marvel. Our drinking water is so much safer than it was just 100 years ago. I mean it really is unprecedented in human history that a population of over 300 million people has access to safe drinking water. I mean very very very very few people get sick or seriously harmed drinking tap water in the United States. And that is a historical achievement. I mean literally historical.

**Nick Capodice:** [00:15:49] That was Jim Salzman author of Drinking Water: A History. .

**Hannah McCarthy:** [00:15:57] Music This week comes from broke for free. .

**Nick Capodice:** [00:15:59] Our Old friend. If you want to learn a little bit more about water and its history in the U.S. You should check out our newsletter, extra credit where we dive every week into the ephemera trivia historic moments. Regular topics. I have a feeling this time it's going to be a lot about the Croton Aqueduct and the Collect Pond, Hannah! Sign up on civics101podcast.org. .

**Hannah McCarthy:** [00:16:20] This Week's episode was produced by Justine Paradis. Our staff includes Ben Henry, Jimmy Gutierrez, and Taylor Quimby. Erika J anik is our executive producer. Civics 101 is a production of New Hampshire Public Radio.