



Two-Handed Economics: How Toilet Paper Became our Scarcest Commodity During COVID-19

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As I write this in early 2021, many of the grocery stores in the United States still do not have a large supply of toilet paper, non-perishable goods or soap. As professionals in water and wastewater, we never had to be told that toilet paper was important. We continually build infrastructure to deal with toilet paper, accommodate higher strength flows and remove potential pollutants from wastewater.

I humorously joked that the old “gold standard” of currency should be replaced by a new “paper standard” linking bills to soft squares of two-ply. All of this is, of course, in jest, and I do not want to make light of the terrible pandemic that has taken thousands of lives.

Through this tragedy, we have seen people rise up to help one another, support essential workers and practice social distancing to protect our most vulnerable. But this “run on the grocery stores” highlights an important consumer concept: fear. Fear is one of the most powerful motivators for choice.

The Run on Grocery Stores

In economics, fear manifests itself in spending choices. People spend on and stockpile essentials and save the rest. Lack of spending creates economic contraction as businesses struggle to stay afloat and pay their employees, which causes cyclical downward pressure as those employees in turn spend less.

HDR’s article series on water economics, [Two-Handed Economics](#), explores how an economic mindset can help utilities optimize and deliver complex projects and programs with confidence.

As such, it’s important for us to understand fear as a motivator of choice (and I promise I’ll get to how it impacts the water market in a bit). COVID-19 created one of the most rapid shocks to our economy in a generation.

Stay-home orders led to a rapid and immediate halt of people spending money at restaurants, airlines, hotels, local stores and other businesses.

These stay-at-home orders created a sudden pause on our normal daily life that echoed like a silent shock through our streets (it’s the quietest I have ever seen downtown Seattle, Washington, since moving here nearly 10 years ago).

Consumer fear can change the way people budget and spend, which in turn can cause revenue gaps for utilities to use towards critical infrastructure needs.

Put simply, we need to proceed with an informed strategy to target critical elements of systems and investments that reduce the greatest risk in times of tight budgets.

The immediate and indefinite impact on business has posed many questions for water and wastewater utilities, including the impact on revenues. Utilities serving areas dominated with commercial businesses, industries, high commuter populations or tourism are likely seeing decreases in revenues, while those dominated by residential consumers may be seeing the opposite. It's important to assess the demographics of your customers to predict the long-term impact of COVID-19 on revenues.

Controlling What You Can When Things Seem Out of Control

When revenues can't be controlled, utilities turn to what can be: capital investments and operating expenses. We look to be more efficient, making targeted, smart investments on the most essential needs.

But how do you determine what those investment needs are? There are a variety of methods. In an ideal world, we would use asset management databases to understand criticality, risk and target renewal and replacement activities on assets with the most imminent risk of failure. We would put on our integrated planning hats and think holistically about achievable levels of service and how we can negotiate and optimally meet regulations.

While those are good approaches to weathering this storm over the long term, it may be a lot for a utility to undertake during a pandemic, as they are in "triage" mode. Consider using what data you have and making it work for you.

If you don't have automated meter infrastructure, there may be other flow monitors in the water or wastewater systems that can be used to understand consumption. Use pilot programs in strategic areas. Use your understanding of the system to identify critical services areas, like hospitals, to think about capital projects. There are also many ways to prioritize projects that don't have to involve rocket science.

Water and wastewater aren't flowing the way they did. In some cases, the changing makeup of wastewater and lack of people movement strained our systems to just cope with all the toilet paper. The hydraulics may have changed because people aren't moving around communities as much.

Wastewater strength also may have changed with the lack of business and commercial wastewater, and people using low-flow fixtures at home. But that's not the greatest concern that this pandemic has posed to water and wastewater utilities. While there are some variable costs to treat water and wastewater such as chemicals and energy, they are eclipsed by the fixed cost to have the system and capacity in place.

Fear and choice have major implications for our industry. Fear can change the way we pay bills, including water and wastewater. Fear can change the way consumers spend, causing a decline in commercial water use.

IN EQUILIBRIUM



IN DECLINE



Economic shock and fear can create a cycle of downward economic pressure.

With a client in my home state, we've developed high-level prioritization criteria for risk of failure, reliability, water quality, safety and compliance. We weighted the criteria, in a workshop setting, by giving everyone "points" to divide up between the criteria.

In other cases, we've created a survey or facilitated a pairwise comparison. Through a simple exercise like this, you can develop a ranked inventory of projects in a matter of days.

A HOLISTIC LIST OF CRITERIA PRIORITIZES PROJECTS BASED ON NEEDS

Criteria Definition	No Impact	Low Impact	Medium Impact	Strong Impact	Extreme Impact
SAFETY					
Reduces immediate, identifiable safety risk to the public and employees.	Project does not include safety components.	Project provides minimal mitigation for safety risk.	Project moderately mitigates safety risk.	Project significantly mitigates safety risk.	Project eliminates safety risk.
CUSTOMER & EMPLOYEE EXPERIENCE					
Improves experience by empowering customers with modern technology (e.g., AMI).	Project does not include customer and employee experience components.	Project provides minimal contribution to customer and employee experience objectives.	Project moderately contributes to customer and employee experience objectives.	Project significantly contributes to customer and employee experience objectives.	Project provides unique, substantial and extensive contribution to customer and employee experience objectives.
RELIABILITY					
Enhances customer perception that agency is a reliable and efficient service provider.	Project does not include customer reliability perception components.	Project provides minimal contribution to customer reliability perception.	Project moderately contributes to customer reliability perception.	Project significantly contributes to customer reliability perception.	Project provides unique, substantial and extensive contribution to customer reliability perception.
COMPLIANCE & STEWARDSHIP					
Contributes to meeting regulatory compliance requirements. Supports achieving conservation goals or other mandated requirements.	Project does not include compliance or stewardship components.	Project provides minimal contribution to compliance and stewardship objectives.	Project moderately contributes to compliance and stewardship objectives.	Project significantly contributes to compliance and stewardship objectives.	Project provides unique, substantial and extensive contribution to compliance and stewardship objectives.
RATE AFFORDABILITY & ECONOMIC DEVELOPMENT					
Lowers cost of services (i.e., makes rates more affordable) or cost effectively sustains revenue.	Project does not include rate affordability and economic development components.	Project provides minimal contribution to rate affordability and economic development objectives.	Project moderately contributes to rate affordability and economic development objectives.	Project significantly contributes to rate affordability and economic development objectives.	Project provides unique, substantial and extensive contribution to rate affordability and economic development objectives.

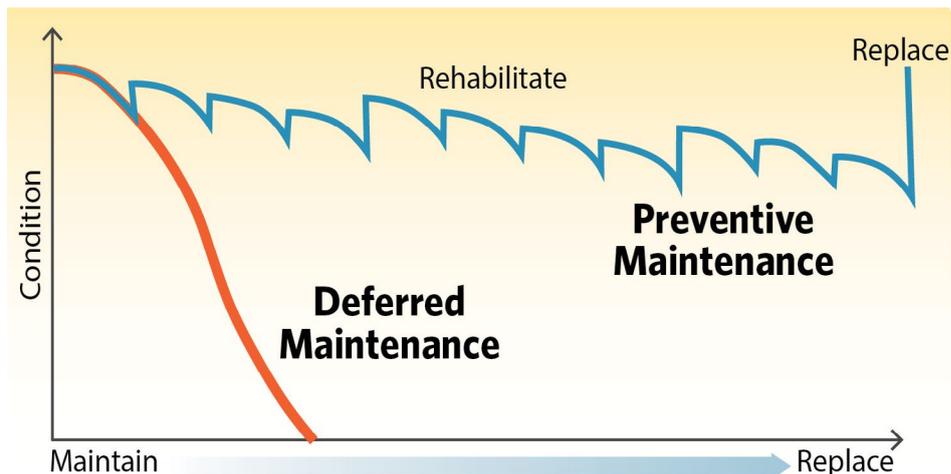
Don't Defer

Deferred maintenance is an industry-wide challenge. Pressure for lower rates combined with buried “out of sight, out of mind” infrastructure means that, ahead of this crisis, many utilities that I work with have been addressing deferred renewal and replacement, and more and more are looking for ways to build treatment and conveyance projects that bring their rate payers the best bang for their buck. This pressure right now feels even more than usual.

In many cases, elected officials feel the need to defer rate increases. While this gives short-term relief, especially to low-income or unemployed customers, it only pushes out, and increases, the eventual need for rate increases to reinvest in the system.

It's easy to put maintenance and rehabilitation off until things rebound, but it's important not to do this at the expense of risking major asset failures. There's no silver bullet to solve this. Providing clean water and treating wastewater costs money.

So, what's the closest thing to a silver bullet that we have? It's using all of the tools available to us to get the most of our systems, make smart investment now, figure out what it takes to maintain the current level of service for the next year, balance empathy with cost of service and leverage the best funding and financing out there.



Preventative maintenance helps get the most time out of an asset's useful life.

Interest rates are low and there are state and federal loan programs to help, like state revolving funds and the [EPA's Water Infrastructure Finance and Innovation Act](#).

Planning to Be Spontaneous

My mom is a planner through and through, and my siblings and I always tease her that she had to plan to be spontaneous. Right now, that's exactly the kind of thinking we need (You're welcome, Mom).

Planning to be spontaneous means hoping that your Plan A works, but having a Plan B, Plan C and maybe even Plan D in case it doesn't. These could be in the form of different funding sources, project schedules or phasing, or rate plans. Being able to trigger one of these plans will help keep your utility nimble and adaptable as more information becomes available.

When this pandemic first hit, I thought economic recovery would be only six months out. Now with a resurgence of cases and many states slowing their reopening process, it may take longer. There is still a lot being discovered about the virus, including reinfection rates and immunity, seasonality and vaccine development.

As the science progresses, so will our understanding of how quickly businesses will be back to more “normal” operations. Commerce is a key factor for the long-term revenue picture at utilities, and they should be prepared with scenarios that include a couple years of economic downturn and decreased in-person commercial activity.

While I hope that economic recovery is on the horizon, the U.S. had its worst quarterly economic contraction on record, with the Bureau of Economic Analysis reporting a decrease of 31.7% (annual rate) in the second quarter of 2020 (BEA, 2020).



HDR's EconH2O tool helps combine all of the relevant planning factors into one model to make informed capital and financial decisions.

Communication between departments is also important to develop a strategic plan that fits within constraints and considers public will.

Finance and engineering teams should work together to monitor recovery efforts and the utility's financial trends. This will help Finance understand the drivers behind investments and Engineering understand the current revenue forecasts and financial targets.

Scenario planning tools help utilities react quickly and keep capital plans moving. Tools like HDR's EconH2O can quickly prioritize projects, evaluate rates and funding, and consider capital project implementation schedules.

Financial Resilience: Restoring Confidence and Recovering Strong

Utilities are adapting their plans to address revenue shortfalls by working with rate consultants and municipal financial advisors to establish policies on reserves and liquidity for both capital and operating budgets, and on debt management.

Utilities also need to have means of prioritizing projects, communicating across departments and informing elected officials about trends and drivers.

As I mentioned earlier, we've also seen that while some City Councils are deferring upcoming rate increases, it's important that they understand short-term deferral means larger increases needed in the future.

While this is a perfectly valid approach to managing financial burden on the public (within the ability to operate the system safely), we must make sure decision-makers understand the context that short-term rate deferrals have down the road to meet long-term system needs.

The last article in our Two-Handed Economics series talked about the importance of consumer confidence in water. Little did I think that this concept would be tested a few short months later. Using the strategies I've described above for strong financial management, project prioritization and scenario planning, utilities can maintain consumer confidence in safe drinking water and clean wastewater. Consumer confidence in our utilities will only help economic growth as revenues flow in, infrastructure gets built and businesses get back in business with people spending more.

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