Lessons Learned from the Water Industry

Biochar 2018 – Wilmington, DE
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Wastewater and Biochar

The wastewater industry is entering a new age of innovation and public awareness. Can lessons can be learned from their past and help biochar in the future?

State of the Industry
5 Key Initiatives
Biosolids Case Study
Public Perception
WASTEWATER

34 BILLION GALLONS PER DAY
The United State(s) of Water

Ongoing access to clean, safe water is critical to our economy, health, and way of life. Although we live in different parts of the country, Americans are united in our dependence on water and the infrastructure that connects, protects, and supports it.

The Cost of Clean
Water is free, keeping it clean, safe, & flowing is not. We must invest in our systems.

Value of Water
- 90% of Americans are in favor of paying more to invest in water infrastructure.
- 23 to 1 return for U.S. public health from early clean water investments.

What Happens When We Invest?
We could gain over $20 billion in annual economic activity and generate 1.5 million jobs by meeting U.S. water & wastewater infrastructure needs.

The Three R's
Every drop is cleaned, reused, recycled, & returned to the environment.
- The average American sends between 60-185 gallons of wastewater to the system each day.
- 34 billion gallons of water are treated each day by U.S. water treatment plants.

Going Green, Saves Green
30%-60% of the amount of $ saved by treating stormwater at its source with green & traditional infrastructure.

Age at a Glance
Average age is 60-130 years old.
- 800,000 miles of water pipes.
- 700,000 miles of wastewater pipes.

Return on Investment
- Every new water sector job adds another 3.68 to the economy.
- Every $1 spent on infrastructure generates $6 in returns.

Where’s the Water?
The average American uses 100 gallons of water daily.
THE UNITED STATE(S) OF WATER

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THE COST OF CLEAN WATER
Water is free, keeping it clean, safe, & healthy is not. We must invest in our systems.

VALUE OF WATER
50% of Americans are in favor of paying more to invest in water infrastructure.

WHAT HAPPENS WHEN WE INVEST?
We could gain over $220 billion in annual economic activity and generate 1.3 million jobs by meeting U.S. water & wastewater infrastructure needs.

RETURN ON INVESTMENT
Every new water sector job adds another $3.66 to the economy. Every $1 spent on infrastructure generates $6 in returns.

WHERE'S THE WATER?
The average American uses 100 gallons of water daily.

MAKING GREENER, LEAVES GREENER
10% the amount of $ saved by capturing stormwater at its source with sustainable infrastructure.
THE UNITED STATE(S) OF WATER

Ongoing access to clean, safe water is critical to our economy, health, and way of life. Although we live in different parts of the country, Americans are united in our dependence on water and the infrastructure that connects, protects, and supports it.

THE COST OF CLEAN

Water is free, but it is not. We must invest in infrastructure to ensure that all people have access to clean water.

WHAT HAPPENS

RETURN ON INVESTMENT

Every new water sector job adds another 3.68 to the economy.

Every $1 spent on infrastructure generates $6 in returns.

WHERE'S THE WATER?

The average American uses 100 gallons of water daily.

VALUE

- 60% of Americans are in favor of paying more to invest in water infrastructure.
- 25 to 1 return on investment for U.S. public health from early clean water investments.

RETURN ON INVESTMENT

- 54 billion gallons of water are treated each day by U.S. water treatment plants.
- 700,000 miles of water pipes.
Water Resource Recovery Facility
Wastewater and Biochar

How has the water industry grown in the past decade? What has worked and what lessons have been learned?

State of the Industry
5 Key Initiatives
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Advance local and regional collaboration

51,000 Community Water Systems
15,000+ WRFFs
80% serve < 3,330 people
Partner with outside industries to improve water quality

Partnerships

Funding

Policy
RIO GRANDE WATER FUND
A Wildfire and Water Source Protection Project
Protect public health

This Is A Dirty Bomb

Biosolids. Bioterrorism.
Defend Our Food, Water & Air.

End Land Application of Biosolids

Our farmland and our Food-Chain should not be the resting place for Big City Toxins!

COMING IN 2017
Generate alternative sources of funding for water infrastructure
Accelerate technology adoption to build efficiency and improve water service
Accelerate technology adoption to build efficiency and improve water service
Wastewater and Biochar

Biosolids and biochar share a lot of similarities such as strong environmental benefits and building a fledgling industry. What has worked and what hasn’t?

State of the Industry

5 Key Initiatives

Biosolids Case Study

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Re-sequester 60-70% of the lost soil organic carbon

Revenue source for WRRFs

Increase carbon storage in soils

Increase water holding capacity

Promote circular economy

Increased organic matter

Produce significant improvements in crop growth and yield
Licensed to kill gophers by the government of the United Nations.
Licensed to kill gophers by the government of the United Nations.
“The Original Organic Fertilizer”

BLOOM

GOOD SOIL, BETTER EARTH.

Milorganite Fertilizer

USE EVERYWHERE.

FOR BETTER RESULTS. NATURALLY.

Covers up to 2,500 square feet.

Turn your dirt around.
Biosolids Innovations

Thermal Hydrolysis

Pyrolysis
Wastewater and Biochar

Public perception is critical in wastewater. The water industry faces a certain “yuck factor” that must be overcome to move forward.

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2014

Pure Water Brew is launched with a homebrewing competition hosted by Clean Water Services, Carollo Engineers and the Oregon Brew Crew.

2015

The winner from the second annual Pure Water Brew competition has their winning beer served at WEFTEC.

2016

The Arizona Community Federation awards first place and $250,000 to the Arizona Pure Water brew Challenge.

2017

The Pure Water Brewing Alliance is formed, bringing together utilities, brewers, engineering firms and technology companies to help promote recycled water through beer.

2018

The Pure Water Brewing Alliance continues to help educate the public about the value of water through different events, including speaking at the 2018 Craft Brewers Conference.
The water purification process

Using a multi-barrier purification process, we can transform recycled water into PURE water – A Proven Technology.

The result is a Safe, Reliable and Sustainable water supply.

- Recycled Community Wastewater
- Ultrafiltration: Removes: Suspended solids, Bacteria, Protozoa, Cryptosporidium, Giardia.
- Reverse Osmosis: Removes: Organics, Pharmaceuticals, Personal Care Products, Inorganics, Heavy metals, Viruses.
- UV/Advanced Oxidation: Destroys: Pathogens, Trace organics.
- Granular Activated Carbon: Removes: Trace organics, Disinfection byproducts, Remaining hydrogen peroxide.
- Chlorine Disinfection: Destroys: Pathogens, Viruses.

PURE Water

Beer!
THE MAPLE BACON STORY
Maple Bacon Coffee Porter was initially released in the Spring of 2011 at The Funky Buddha Lounge & Brewery in Boca Raton. What started as a strange idea to make a beer that tasted like breakfast at some roadside waffle hut soon blossomed into a cult following among beer fans nationwide. The "Maple Bacon" craze that followed was a large part of what propelled us to open our brewery in Oakland Park today.

Maple Bacon Coffee Porter pours an opaque ebony with a frothy tan head. Aromas of sticky maple syrup and fresh-brewed coffee creep forth from the glass. The mouth feel is luxuriously creamy, with layers of sweet malt and roast giving way to waves of smoke, coffee, and dark salted chocolate. The finish is sticky, rich, and sweet, with flavors of maple syrup lingering pleasantly on the tongue. Enjoy in a deep, wide glass with good friends (and maybe a short stack on the side).
Why Dump Treated Wastewater When You Could Make Beer With It?

Portland will get to show off just how good its super-pure recycled wastewater is.

Oregon Homebrewers Get Set to Experiment With 'Sewerage Brewerage'

Is Sewage Beer The Next Big Thing?
In Oregon, a number of brewers are competing to turn sewer water into beer. The brewers said, "Hey, if Bud Light can do it, we can do it!"
It's all a matter of perception. ALL of the water we use, has been recycled, over and over again, by nature. Which is something we SHOULD be paying more attention to—OPB Radio

Pure water is pure water however it got there KGW TV

There is no reason in the world to judge water by its history. We are very much focused on what’s the quality of the water for the use to which it will be put. --Ken Kopocis, EPA Deputy Administrator Office of Water
Something NEW is brewing in Arizona
All water is recycled...join the Challenge!
AZPUREWATERBREW.ORG
What is your hope for your Water Legacy?
THANK YOU!

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