

# Grey to Green Fund (G2G)

## Investment Thesis

### The Challenge

Over the past decade, water rates grew **5.5%** annually on average, more than **3 times** the rate of the inflation. In total, water price has hiked **69%** (inflation adjusted). Within the span of 2015 and 2017, cities across the United States have increased their water prices ranging from **20% to 68%**.

Using the United States Environmental Protection Agency's 4.5% affordability criteria for water and wastewater services, **35.6%** of US households will struggle to afford their water bills by 2024. In addition, **60%** of S&P 500 firms in the US currently regard water risk a reality in their operations and supply chains.

Despite great potential, greywater reuse systems are not yet widely adopted in the United States because of uncertain state regulations, unclear guidance on double plumbing, fears over public health concerns by officials, low profit margins for manufacturers, and low demand.

### The Solution

We aim to install our greywater reuse system in upper-mid and upper-scale hotels and high end apartments under construction. These target buildings form **74%** of total new hotels and **80%** total new apartments in the next two years. By recycling used water containing low level of organic matters from bathroom sinks, showers, bathtubs, clothes washers, and laundry sinks, our greywater reuse system can save up to **46%** of total water use in buildings which install our system. This is significant as water use in hotels and other lodging facilities account for approximately **15%** of the total water use in commercial and institutional buildings in the United States.

Our fund solves the above-mentioned challenge by acting as a market aggregator. On behalf of hotels, we will purchase greywater reuse systems from suppliers and services from maintenance and insurance companies, and offer a 15 year lease to hotels in return for a portion of water bills saved as annual lease payments.

By standardizing business practices and increasing market activity, we help:

#### Regulators

Reduce monitoring costs and meet public health standards.

#### Manufacturers

Create a stable market demand, reach economy of scale, and reduce unit price of greywater reuse machines.

#### Building Owners

Manage costs, planning and liabilities associated with greywater reuse. Lower unit price will also increase demand for machines.

#### Investors

Providing attractive fund which generates two passive cashflows at higher-than-benchmarked IRR.

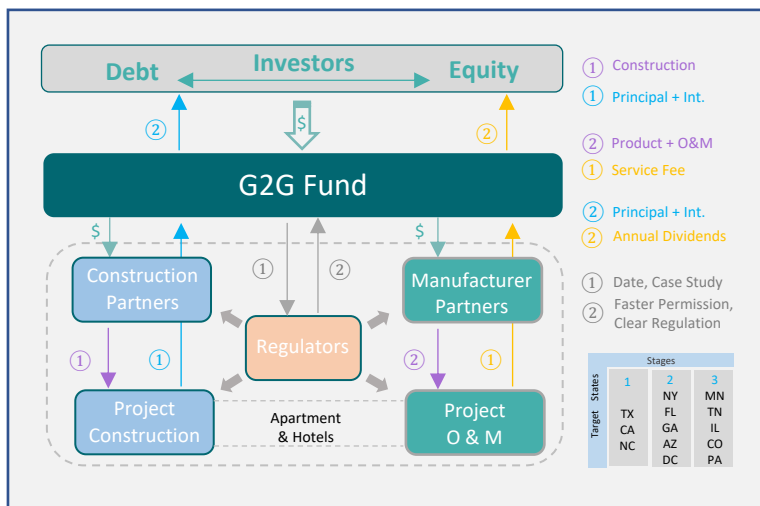
### Target Investor Pool

G2G Fund is a suitable investment vehicle for:

- All type of bond investors, especially those facing higher water risks in their daily operations and supply chains
- Equity investors in search of both global impacts and local solutions, such as university endowment, private equities and water utilities.
- Government grant and national and local funds.

## Fund Profile

### Fund Structure



### Fund Profile and Key Assumptions

Addressable market size	\$42.79B
Fund size	\$240M
Target geography	13 States
Time horizon	15 Years
Asset class	Equity & Bond
Number of projects (First year ~ Last Year)	600 ~ 3000
Average project size	\$400 K
Service fee as discounted water rate	40% discount
Baseline scenario water rate growth rate	5%
First year average water rate – Billable part	\$10.9/ K gallon

### Scalability

The model is scalable across places, water technology, and building types. As more cities adopt environmental building benchmarking and strategy, there will be greater demand for cheaper investment from medium to large scale building owners. Other types of buildings with similar water use profile such as office buildings and public transit centers can also implement our model.

## Due Diligence Process

### Financial Due Diligence

Major hotel brands in the US such as the major four (Marriott, Hilton, InterContinental, and Wyndham) have investment grade credit ratings. The fund will sign contracts with major hotel brands during the initial stages of investment to establish market visibility and reputation. Over the fund's lifetime, only hotel brands with Baa-level credit ratings and higher than industry average occupancy rate (typically above 65%) will be selected.

### Product Due Diligence

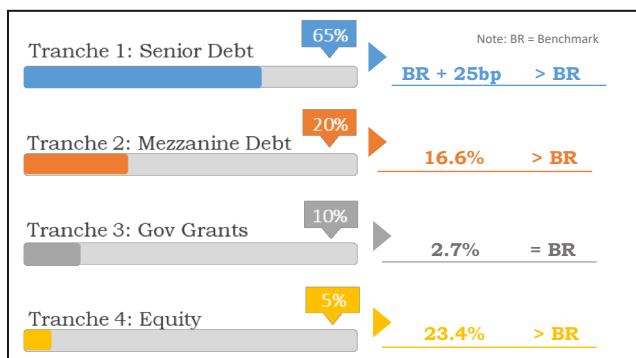
Choose equipment suppliers with track record of comparable operations, local presence and credible market reputation. Compare between multiple manufacturers before purchasing from one or two suppliers who offer a good balance between price and quality.

### Legal Due Diligence

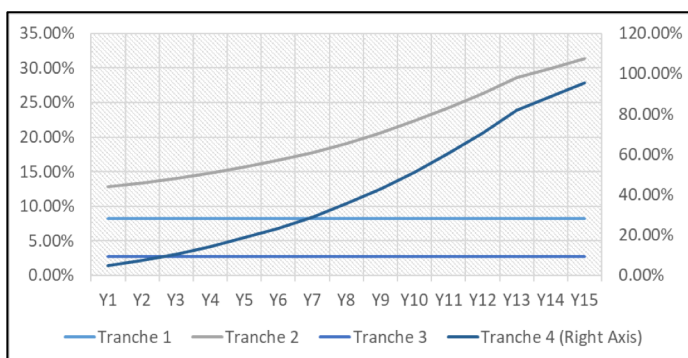
Greywater generated in hotel guest rooms and laundry system are typically categorized as light greywater that contains relatively low levels of pathogens, chemicals, fats, oil, and grease. There is no restriction on reusing light greywater for toilet flushing. Greywater storage requirement slightly differs by states. Specific technology and system setup will be based on local regulations. The fund will initially target states with relatively advanced onsite water reuse regulation to build up momentum.

# Investment Return Analysis

## Funding Sources Structure and Performance



## Investment Return Analysis (4 Tranches - Over 15 Years)



### Sensitive Analysis: IRR (Row 2) ~ Water Rate Growth Rate (Row 1)

Tranche	Water Rate Growth Rate (Row 1)									IRR (Row 2)									Tranche
	2%	3%	4%	5%	6%	7%	8%	9%	2%	3%	4%	5%	6%	7%	8%	9%			
2	13.03%	13.74%	14.45%	15.18%	15.92%	16.67%	17.42%	18.18%	14.97%	17.16%	19.16%	21.04%	22.81%	24.50%	26.12%	27.69%	4		

## Innovative Solutions

### Meet Diversified Needs of Different Investors

**Barrier:** most of current sustainable investment mechanisms only target investors with ESG goals

**Solution:** G2G Fund provides not only senior tranche of Green Bond catering for the needs of risk-averse retail investors with consideration of environment, sustainability and governance (ESG) requirements, but also offers mezzanine financing targeting return-driven institutional investors.

### Short Payback Period Significantly Reduce Risks

**Barrier:** investment in traditional project finance is usually paid back in the last year of project, which poses extremely high risks and illiquidity for investors

**Solution:** G2G fund operates under the 3-year payback mechanism. With invested cash quickly revolved, investors are able to achieve similar returns while bearing much less risks of value loss or illiquidity

### Bundled Services and Contracts Save Costs

**Barrier:** the currently premature and fragmented greywater reuse system market discourages large-scale investment

**Solution:** G2G fund aggregates the market by engaging regulators, manufacturers, building owners and investors, and saves each stakeholder significant transaction costs through bundled contracts covering construction, installation and maintenance

## Impact Metrics

<b>Water savings</b>	1430.8 Million Gallons/y over 15 yr	This equals to the indoor water use for 9.5 million US households in one year
<b>Energy Savings</b>	~4000 GWh/y over 15 yr	this equals to the annual electricity consumption of about 403,000 US households
<b>Reduce load on water infrastructure</b>	Less water use and wastewater discharge reduces the likelihood of water leakage, sewage overflow, chances of public health outbreaks and maintenance costs of water pipes	

## Risk Factors and Mitigation Strategies

Risk	Mitigation Strategy
Equipment and technology risks	Warranty and insurance expenses are included in the financial model
Water quality performance	<ul style="list-style-type: none"> <li>Choose suppliers with NSF/ANSI 350 Onsite Water Reuse certification</li> <li>Actively engage local Division of Public Health and Department of Public Health during the permitting process</li> </ul>
Market demand for greywater reuse	Conduct in-depth market research and stakeholder engagement, negotiate contracts with hotels before drawing large-scale investments
Regulatory standards	Actively engage the US Water Alliance in the development of risk-based standards for onsite non-portable water reuse systems, move forward the regulations with the large scale real operational data

## Greywater Operation demo

	Performance
Solaire Building, NYC, 2003	<ul style="list-style-type: none"> <li>25,000 gallons/day for flushing toilet, cooling tower, laundry and irrigation</li> <li>Reduce 48% water consumption and 56% wastewater discharge</li> </ul>
Hilton Istanbul, Turkey, 2011	<ul style="list-style-type: none"> <li>~22,000 gallons/day (by 2014) for flushing toilets and irrigation</li> <li>Return initial investment in 2 years</li> </ul>
181 Fremont, SF, 2015	<ul style="list-style-type: none"> <li>5,000 gallons/day for flushing toilets and irrigation</li> <li>reduce potable water use by 40%</li> </ul>
Hassalo on 8th, Portland, 2015	<ul style="list-style-type: none"> <li>45,000 gallons/day (100% waste water including blackwater) for flushing toilet and irrigation</li> </ul>