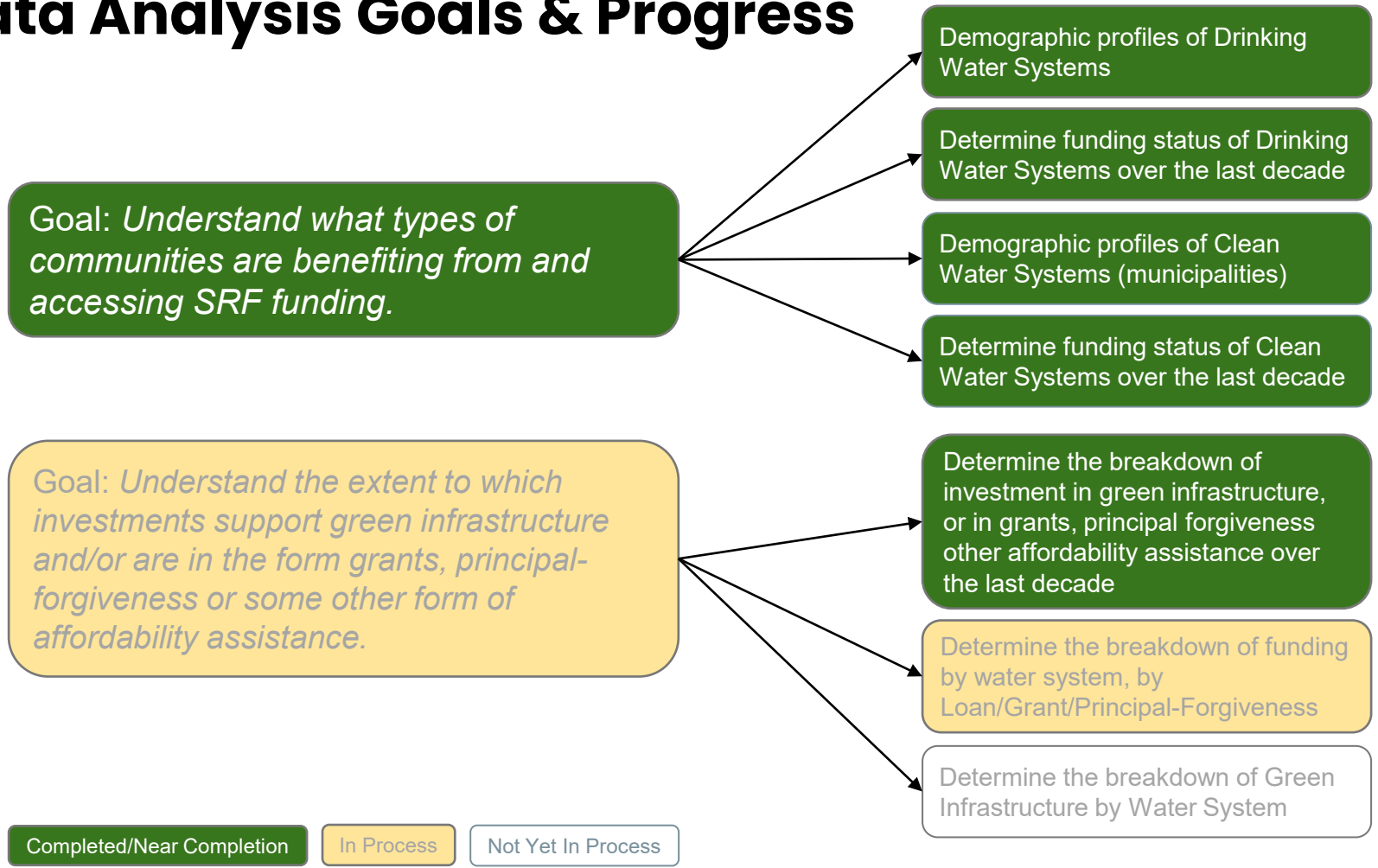
The Water Center
University of Pennsylvania

Appendix B. Investment Data Analysis

Study Scope: PA, NJ, DE within Delaware River Watershed

Image Source: Light Hawk

Data Analysis Goals & Progress



Sources

We relied on two sources of data:

1) **Federal:** A national data set of SRF projects compiled by EPA and shared with us by the Environmental Policy Innovations Center, from which we extracted data for DE, NJ, and PA between 2009 and 2021, and;

2) **State:** Project data provided by these state SRF programs themselves for the same period

Limitations

We faced some challenges:

1) **Federal:** The federal project data:
   a) Does not include any descriptive information about the projects beyond some standard/basic categorizations

1) **State:** . The state level data (where we could get it) is:
   a) Not consistent across states or with the federal data.

Approach: We primarily used the federal data, along with census and other readily available demographic data.

Approach to understanding: *Are the SRF funds being distributed equitably to the communities that need the most support?*

Steps	Context	Analytic
1. Consider the demographic profiles of drinking water and wastewater service areas 2. Tabulate CWSRF and DWSRF funding in PA, NJ, and DE within DE River Watershed, 2009-2021 3. Assign Social Vulnerability Index (SVI) to each drinking water system and county	1. DWSRF - demographic profiles constructed via spatially weighted averages CWSRF - there are no established wastewater service areas - therefore used county level demographic profiles 1. - 2. Since we are considering 15 or less counties in each state, if a county receives an SVI greater than 0 it is technically in the upper vulnerability tier for one of the 8 metrics.	1. CWSRF - Using county level demographics does not give us a complete/ accurate understanding of who's benefiting from projects at the system-level 2. EPA data was consistent, however could not cross reference with state provided data 3. It's only relevant to compare county SVIs within the same state, not between states.

Limitations

Approach to understanding: *Are the SRF funds being distributed equitably to the communities that need the most support?*

Steps	Context	Analytic
Limitations		
1. Look at all projects in the stormwater management category to assess which involved natural infrastructure, using a simple rating system	4. The rating system includes 5 categories: solely green, green and gray, gray and unclear, allows us to delineate out of all the SW funded projects, which actually included green/natural infrastructure	4. Project descriptions, if available, were not explicit - some "guess work"
1. Begin equity analysis	1. Two primary considerations: a. Funding per capita b. % Principal forgiveness loans	1. Other considerations could be made, there's no "equity standard" across metrics beyond SVI - we've begun to conduct trend analyses between per capita principal forgiveness vs. MHI AND per capita principal forgiveness vs. %BIPOC for each state, to see if there are significant trends between per capita principal forgiveness funding and various social vulnerability metrics

Social Vulnerability Index (SVI)

GOAL: To look at **SRF funding** through the **lens of water equity**.

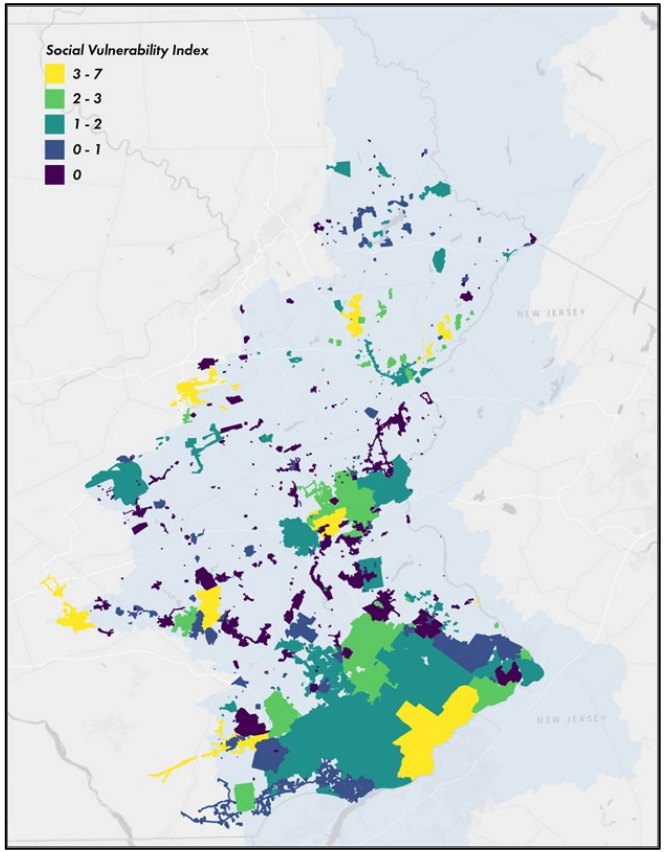
APPROACH: We used the metrics/indicators most relevant to the **US Water Alliance definition** of vulnerable communities:

1. Communities of color
2. Immigrant communities
3. Indigenous communities
4. Limited English proficiency
5. Poverty
6. Low Median Household Income
7. Elderly population
8. Youth population

The SVI is an indicator that aggregates multiple demographic metrics to evaluate vulnerability relative to an entire study group. (Max SVI = 8 = Most vulnerable)

PA SVI

DWSRF



Pennsylvania Drinking Water Systems	Total	Socially Vulnerable	Upper Quintile of Social Vulnerability
Accessed Funding	16 (2.8%)	14 (2.5%)	4 (< 1%)
Did Not Access Funding	541 (97.2%)	306 (55%)	16 (2.8%)

PA SVI

CWSRF

County	Population	MHI	Poverty Rate	% BIPOC	SVI
Berks	418,025	$63,728	11%	18%	1
Bucks	626,806	$89,139	6%	12%	0
Carbon	63,887	$57,006	11%	4%	0
Chester	519,560	$100,214	6%	15%	1
Delaware	564,554	$74,477	10%	31%	1
Lackawanna	210,652	$52,821	14%	9%	1
Lebanon	139,729	$60,281	10%	13%	1
Lehigh	365,052	$63,897	11%	21%	2
Luzerne	317,663	$53,473	14%	12%	0
Monroe	168,032	$63,934	11%	24%	0
Montgomery	823,823	$91,546	6%	21%	0
Northampton	302,809	$70,471	8%	14%	0
Philadelphia	1,579,075	$45,927	23%	59%	6
Pike	55,453	$65,928	9%	12%	1
Schuylkill	142,674	$52,280	13%	6%	1
Wayne	51,422	$56,096	11%	6%	1

PA CWSRF Equity & GSI Considerations

Equity:

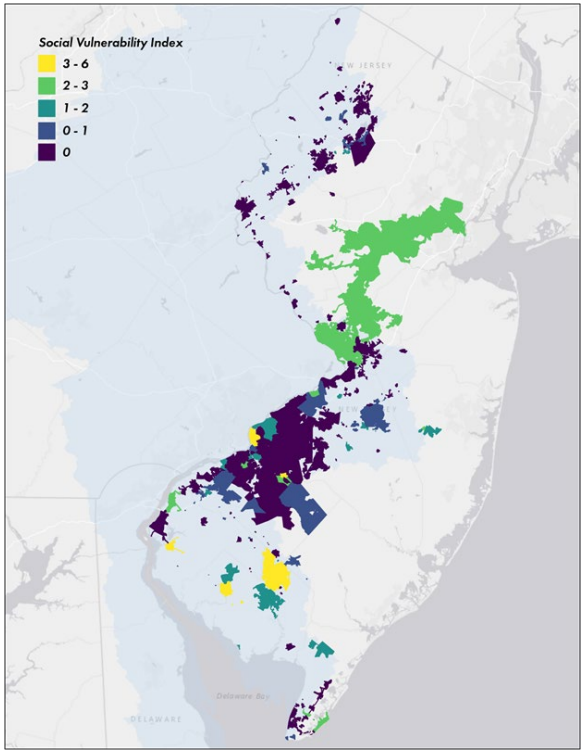
- The county that received the most per capita CWSRF funding has an SVI of 1
- The county that received the highest amount of PF per capita funding has an SVI of 0

GSI

- Out of 101 CWSRF awards there were 23 for stormwater projects
- There was only 1 project granted that clearly included green infrastructure

NJ SVI

DWSRF



New Jersey Drinking Water Systems	Total	Socially Vulnerable	Upper Quintile of Social Vulnerability
Accessed Funding	45 (19.5%)	10 (10%)	4 (1.7%)
Did Not Access Funding	185 (80.5%)	75 (32.6%)	4 (1.7%)

NJ SVI

CWSRF

County	Population	MHI	Poverty Rate	% BIPOC	SVI
Camden	506,738	$70,451	12%	37%	0
Cape May	93,086	$67,074	9%	9%	1
Cumberland	151,906	$54,149	16%	33%	3
Gloucester	291,165	$87,283	7%	19%	0
Mercer	367,922	$81,057	11%	37%	3
Monmouth	621,659	$99,733	7%	18%	0
Ocean	596,415	$70,909	9%	9%	1
Salem	62,990	$66,842	12%	20%	0
Sussex	141,483	$94,520	5%	7%	0
Warren	105,862	$81,307	8%	12%	0

NJ CWSRF Equity & GSI Considerations

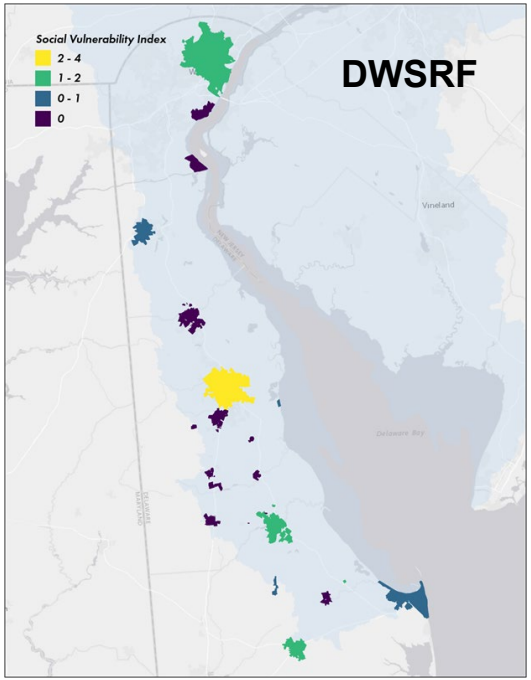
Equity:

- The county that received the most per capita CWSRF funding has an SVI of 1
- The county that received the highest amount of PF per capita funding has an SVI of 1

GSI

- Out of 284 awards, there were 7 CWSRF awards for stormwater projects.
- There were no awards clearly granted at the solely green or green and gray levels.

DE SVI



CWSRF

County	Population	MHI	Poverty Rate	% BIPOC	SVI
Kent	176,699	$60,910	13%	35%	4
New Castle	556,165	$73,892	11%	36%	3
Sussex	224,384	$63,162	11%	18%	1

Delaware Drinking Water Systems	Total	Socially Vulnerable	Upper Quintile of Social Vulnerability
Accessed Funding	9 (47.4%)	6 (31.5%)	1 (5.3%)
Did Not Access Funding	10 (52.6%)	3 (15.8%)	0 (0%)

DE CWSRF Equity & GSI Considerations

Equity:

- The county that received the most per capita CWSRF funding has an SVI of 1
- The county that received the highest amount of PF per capita funding has an SVI of 1

GSI

- Out of 97 awards, there were 7 CWSRF awards for stormwater projects.
- There were 2 awards granted at the solely green level

High-Level Summary

- Most counties in PA, NJ and DE **acessed** CWSRF awards, however for the most part, communities that are considered the most socially vulnerable/ overburdened did ***not*** **access** comparable funds
- Most drinking water systems in PA, NJ and DE **did not access** DWSRF awards; For the drinking water systems that did access DWSRF funds in each state, 43% are considered socially vulnerable.
- We acknowledge that challenges due to the necessary application process and staff time/capacity, project identification and prioritization, match funds, planning and design time and cost, etc., are all factors to consider in the future case study development as reasons *why* overburdened communities are not applying for the funds, let alone accessing them
- Notably, for PA and DE, most of the green funds were awarded to counties that are at the higher end of social vulnerability within their study group.