

# SEA LEVEL RISE AND VULNERABLE INFRASTRUCTURE: WELLS

## Issue

Wells often serve rural communities' water needs. Due to sea level rise, wells are vulnerable to **salt water intrusion** in Virginia's coastal regions. Localities may need to consider the solutions below to **ensure communities' continued access to a safe water source**.

## Solutions

### Implement Community Systems

- **Community well systems** supply water to more than one private person.
- Community well systems can ensure a safe water supply by **relocating the well to higher ground**.

### Import Water

- **Importing water** from outside of the geographic region is a potential alternative when other options are not viable.
- Regions stricken with drought, such as southern California, import water to **supplement their water supply**.



### Who Regulates Private Wells?

The Virginia Department of Health (VDH) regulates private wells construction and standards. The Virginia Department of Environmental Quality (DEQ) manages groundwater supply and works with VDH in permitting private wells.

### Harvest Rainwater Quality Considerations

- |                    |                          |
|--------------------|--------------------------|
| • Dust             | • pH                     |
| • Animal Droppings | • Construction materials |
| • Insects          | • Design and maintenance |
| • Detritus         |                          |



### Regular Well Testing

- **Regular well testing** is currently not required but recommended by VDH. While only some localities are authorized under VA Code § 32.1-176.5 to require regular testing, localities may seek to amend the Code to require such testing.
- This solution is a practical step for localities to **record and monitor salt water intrusion**.

### Rainwater Collection, Gray Water Reuse

- VDH and DEQ are to **promote the use of rainwater collection to reduce demand on fresh water supply** according to VA Code § 32.1-248.2.
- At the individual level, rainwater collection and gray water reuse may not meet the standards required for potable water but **can reduce a household's demand on a well** for other uses.



## Considerations for Solutions

### Community Systems

- Community systems can disperse the cost and burden of upkeep, but localities will need to answer who is ultimately responsible.
- Connection fees and retrofitting existing homes into a community system may be burdensome.
- Rural communities may lack the population concentration necessary to make community water systems viable.

### Importing Water

- Although coastal Virginia has historically had sufficient groundwater and surface water supply, importing water may be necessary if supply becomes inadequate or water quality is deficient.
- This option is expensive and causes the locality to be dependent on an outside geographic region for its water.

### Regular Testing

- Regular well testing for bacteria and pH levels is currently recommended by VDH, and the burden remains on the homeowner to conduct such testing.
- Localities authorized by the Code of Virginia to require regular testing should consider the financial and time burden such testing imposes.

### Rainwater & Gray Water

- Rainwater collection and gray water reuse may be a more viable individual solution due to the expense of implementing a locality-wide version.
- Localities should ensure that homeowners who utilize this alternative are aware that the infrastructure for collection or reuse for non-potable uses must conform to the Virginia Uniform Statewide Building Code (see 2018 Virginia Residential Code § P2910).

## Funding & Grants

- [Fight the Flood](#)
- [Southeast Rural Community Assistance Project, Inc. \(SERCAP\)](#)
- [Virginia Coastal Resilience Funding Database](#)
- [National Association of Counties](#)
  - See Open Notices of Funding under "Implementing Infrastructure Investments at the County Level"
- [Virginia Household Water Quality Program](#)
- [VDH Financial & Construction Assistance Programs \(FCAP\)](#)

## Resources

- [VDH Wells Location Map](#)
- [VDH Rainwater Harvesting Guidelines](#)

## Local Government Actions

- Local governments could consider **community outreach and education campaigns** that focus on vulnerability and impacts of sea level rise on well infrastructure.
- Localities could connect property owners to information about alternative well options and assistance programs.