

# KICK STARTING WATER REUSE

## Legislation and Policy Options for Rio de Janeiro

David Schumacher  
 djschuma@usc.edu  
 Barbara Sheng  
 bsheng@usc.edu  
 Beth Albrecht  
 ealbrech@usc.edu  
 Rachel Day  
 rachelda@usc.edu  
 Vincent Pla  
 pla@usc.edu

Dr. Eric Heikkila  
 heikkila@usc.edu  
 Avery Seretan  
 seretan@usc.edu  
 Kazuo Fueta  
 kfuet@usc.edu  
 Rhea Mac  
 rmac@usc.edu  
 Ling Feng  
 lingf@usc.edu



**G**lobally, water reuse and management policies are primarily advanced at the state level. Within the United States, the state of California provides a compelling framework by which to contextualize water management.

California has a long history of drought, which has permitted the state time to develop, implement, and adapt policies and legislation that enable ongoing reform, water reuse, and conservation efforts. As with California, water management is at the forefront of policy needs within the state of Rio de Janeiro, and the country of Brazil at large. The first steps in policy reform include careful analysis of stakeholders and key players in water reuse measures. At the federal, state, and municipal levels, there is interplay between vested stakeholders in water reuse reform. For this reason, identifying and engaging community and industry leaders at an early stage, as well as leaders in all facets of media, is a key step in the establishment of an equitable and efficient water reuse system.

**C**urrent state interests are moving towards water reuse in the industry sector. Approaching reform with a focus on industrial water reuse legislation has the potential to lead to a broader discussion within local communities and across all sectors. Beginning with policies for big industries and narrowing down into local communities allows for time to garner local support and strengthen networks that sustain long-term reform. This analysis proposes to enact legislation within the state of Rio de Janeiro that enables agencies at a state level to set clear goals and collaborative efforts, establish water quality standards, monitor and evaluate output, and create incentives for industry participation and community support. Broad goals for this legislation include clearly defining and sharing objectives; creating an industrial water recycling task force; establishing mandate; defining criteria for monitoring, reporting, and enforcing measures; and formulating pricing and quality standards that can be supported by incentives.

# POLICY MENU

## Recommendations Rooted in the California & Global Experience

### Intent, Purpose and Goals

- Legislation should promote the efficient and safe use of recycled water.
- Mandates should minimize demand and supplement existing water supplies.
- Policies should recognize the volatility of water supply and increasing demand of water use.
- Laws should establish numerical goals & target dates.

### Establish a Task Force

- Task Force should include members representing the environment, water utilities and municipalities, industrial leaders, public health officials, and civil society.
- Members of the task force should determine water quality standards, uses, and participation.
- The Task Force should report periodically with intervals set by INEA.

### Mandates

- Legislation should require industries to submit an application to INEA.
- Policy should mandate industries to appoint a site supervisor responsible for overseeing the water recycling system.
- Laws should establish a separate marking system or “purple pipes” to carry recycled water.

### Monitoring, Reporting, & Enforcement

- Legislation should authorize agencies to regulate and enforce water recycling.
- Laws should set time periods for reporting and inspection.
- Policies should enable licensing agencies to suspend license approvals.

### Water Quality & Use

- Water quality matches specific industrial uses.
- Advanced disinfected tertiary levels of treatment include: Flushing toilets and urinals, priming drain traps, industrial process water that may come in contact with workers etc.
- Disinfected secondary levels of treatment include: Industrial boiler feed, nonstructural fire fighting, backfill consolidation around non-potable piping etc.
- Legislation should address discharged recycled water compliance.

### Incentives & Pricing

- Legislation should reflect an equitable sharing of costs and benefits associated with the development and use of recycled water.
- Reused water prices reflect recovery costs.
- Prices of reused water should be at or below alternative prices.
- Incentive preferences value optimization.

### Other Considerations

- Applicant information shared with CEDAE can aid in projecting future reused water demands and long-term planning.
- A recycled water marketplace regulated by FIRJAN Can provide a platform for buying and selling reused water.
- As reused water systems expand, ongoing stakeholder meetings can provide a forum to exchange technical expertise.
- Outreach and public awareness campaigns are essential to long-term water conservation.

For further details, examples, and references of legislation refer to California Water Code Section 13575-13583