History and Prospects for Water Reuse in the U.S.

Glen T. Daigger, Ph.D., P.E., BCEE, NAE, CAE
Professor of Engineering Practice, University of Michigan

For this Webinar I was asked to address two guiding questions, as follows:

1. What were the obstacles to wastewater reuse in the United States, and how were they identified?
2. How were these obstacles addressed and to what extent were they addressed?

A long and generally successful history of water reuse exists in the U.S., which has set the stage for its growing adoption, especially in water-short regions. To frame my response to these two questions I will address the following eight items:

1. Many Forms of Reuse are Available and Used
2. Water Reuse is a Long-Term Practice in U.S.
3. Water Reuse is Common, Even When Not Recognized
4. Reuse is Becoming Recognized as Essential Component of Water Supply Portfolio in Many Locations
5. Non-Potable Reuse is Widely Accepted and Practiced
6. Potable Reuse is Practiced and is Becoming More Widely Accepted
7. Technology is No Longer a Constraint to Water Reuse
8. Acceptance of Water Reuse Depends on Non-Technical Factors

The principal responses to the first question are that the implementation of wastewater reuse was unsuccessful when the institutional capacity to successfully implement reuse systems was lacking and where public perception existing that all viable water supplies are “pristine”. The principal responses to the second question are for only competent utilities to implement water reuse projects and they must use an effective communications plan using proper language which begins well before the concept for the project is introduced to the public and continues on well after the system is operating. Note, that the term “wastewater” should not be used. Water should not be “wasted” just because we have used it. Using water does not alter its basic nature – all we have to do is clean it sufficiently for its new intended use. Several useful references are listed below.

References

1. *Beneficial Use of Graywater and Stormwater*, National Academies Press, Washington, DC (In Preparation).
2. Raucher, R. S. and Tschobanoglous, G., *The Opportunities and Economics of Direct Potable Reuse*, WateReuse Research Foundation, Alexandria, VA, 2014.
3. Schimmoller, L. and Kealy, M. J., *Fit for Purpose Water: The Cost of Overtreating Reclaimed Water*, WateReuse Research Foundation, Alexandria, VA, 2014
4. Lazarova, V., Asano, T., Bahri, A., and Anderson, J., *Milestones in Water Reuse, IWA Publishing, London, 2013.*
5. *Water Reuse: Potential for Expanding the Nation’s Water Supply Through Reuse of Municipal Wastewater*, National Academies Press, Washington, DC, 2012.
6. United States Environmental Protection Agency,*2012 Guidelines for Water Reuse* , EPA/600/$-12/618, September, 2012.
7. Jimenez, B., and Asano, T., *Water Reuse: An International Survey of Current Practice, Issues and Needs, IWA Publishing, London, 2008.*