

Chapter 13 Highlights

1. As water scarcity grows and the drawbacks of dams and aqueducts become more obvious, water managers are devising new water supply solutions and re-discovering old ones. Each of these solutions has its pros and cons, and different solutions will be appropriate in different places. Some of these approaches are aimed at increasing water availability, while others provide water storage to increase resilience to temporal variability.
2. Desalination has experienced great growth and technological improvement over the last few decades, and is already an important water source in some parts of the world. The main drawbacks of desalination are cost and energy use.
3. Wastewater recycling—the reuse of treated municipal wastewater for potable and non-potable uses—is emerging as a major “new” water source in some regions. Wastewater reuse has the potential to alleviate water scarcity while reducing pollution and closing nutrient loops—but can also pose significant threats to public health and soil quality. The key to safe and sustainable wastewater reuse is finding the appropriate level of treatment to reduce the risk to people and soils, while not wasting energy by over-treating.
4. **Water harvesting** is a catch-all term for a variety of small-scale, low-impact approaches to increasing local water supply, including both traditional practices like khadins and emerging technologies like **cloud seeding**. Some energy-intensive and expensive technologies, such as active water-vapor capture devices, are masquerading as water harvesting approaches.
5. Water storage in aquifers has advantages over reservoir storage, including obviating the need for dams and avoiding evaporation losses. Where local hydrogeology is suitable, **managed aquifer recharge** can be an important component of water-supply strategies that involve wastewater recycling and water harvesting.
6. In evaluating water-supply options, it is important to aim for a diversity of supplies and to consider the energy impact of the entire water-supply cycle from source to disposal.