The SWRR Indicators

The SWRR report\(^1\) is based on a framework of 17 key indicator categories, which are listed below. For each category, SWRR answers the following questions:

- What is the indicator?
- Why is the indicator important?
- What does the indicator show?

**System capacities, quality and allocation:** Capacities are the amounts (e.g., flow rates) and quality of water available in nature and the related ability to allocate water among various human uses through social and economic processes.

1. **Gross water availability:** An estimate of the total water supply in the natural system.

2. **Total withdrawals for human uses:** A measure of the total water withdrawn for use by people.

3. **Water in the environment:** A measure of the water remaining in the environment after withdrawals and consumption.

4. **Water quality:** A measure of the quality of water in the environment.

5. **Total capacity to store, deliver, and treat water supply over time:** A measure of the infrastructure capacity by basin, watershed or aquifer.

6. **Social and organizational capacity:** Measures of the capacity of society and its organizations to manage water sustainably.

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Consequences of the way we allocate water capacity: Allocations result in the flow of water to various human uses and water remaining in the environment.

7. Environmental conditions: Indices of the biological, chemical and physical conditions of the environment.

8. Resources and conditions: Characterization of the amounts and quality of resources (such as fish in the environment) supported by water.

9. The quality and quantity of water for human uses: Measures of the quality and quantity of water used in different sectors.

10. Resources withdrawals and use: Measures of the withdrawal or use of resources (such as fish harvest) that depend upon water in the ecosystem.

Effects on people of the conditions and uses of water resources: People benefit from the use of water and water-dependent resources, and their health may be affected by environmental conditions.

11. Human conditions: Measures of the value people receive from the uses of water and the costs they incur.

Important factors affecting water resources: People use land, water and water-dependent resources in ways that affect the conditions of ecosystems and human life.

12. Land use: Measures of the important elements of land use that affect water quality and quantity.

13. Residual flows: An accounting of the flow of water and wastes back into the water system.

14. Social and economic processes: Measures of the systems people and organizations develop to influence water resources and sustainability.

15. Ecosystem processes: Measures of ecosystem system processes that govern water resources and sustainability.

Composite sustainability assessment: Measures that combine or otherwise integrate the above indicators. Although more thought needs to be given here, we suggest two indicators. Each should be GIS based and designed for presentation at watershed, regional, state or national levels.

16. Water use sustainability: The ratio of water withdrawn to renewable supply.

17. Water quality sustainability: A composite measure of the suitability of water quality for the uses desired, including ecosystem uses.

We welcome your participation in and support of the Sustainable Water Resources Roundtable. Further information on SWRR can be found at http://water.usgs.gov/wicp/acwi/swrr. Contact David Berry at davidberry@aol.com or Tim Smith at etsmithusa@netscape.net