

Sustainable Water Resources Roundtable



The SWRR Indicator Framework

Indicators represent a way to measure progress. They can provide a metric for understanding the extent to which water resources are managed to meet the long term needs of our social, economic and environmental systems. In essence, they can help us understand whether or not the nation is on a sustainable course in its management of water and related resources.

The roundtable proposes a five-part framework for organizing water sustainability indicators that represents the inherent interdependency of our nation's water resources:

- **Water availability**
- **Water quality**
- **Human uses and health**
- **Environmental health**
- **Infrastructure and institutions**

Fourteen key indicator categories fall within this framework. Others, described elsewhere, cover the ecosystem processes and social or economic drivers that influence the categories. See the roundtable's preliminary report at http://acwi.gov/swrr/Rpt_Pubs/prelim_rpt/index.html for more information.

A. Water availability: People and ecosystems need sufficient quantities of water to support the benefits, services and functions they provide. Water availability is the total amount of water available in nature that can be allocated for human and ecosystem uses.

1. Renewable water resources: Measures of the amount of water provided over time by precipitation in a region and water flowing into the region from precipitation upstream. USGS considers renewable water resources to be the upper limit of water consumption that can occur in a region on a sustained basis.

2. Water in the environment: Measures of the amount of water remaining in the environment after withdrawals for human use.

3. Water use sustainability: Measures of the degree to which water use meets current needs while protecting ecosystems and the interests of future generations. This could include the ratio of water withdrawn to renewable supply.

B. Water quality

People and ecosystems need water of sufficient quality to support the benefits, services and functions they provide. These indicators are composite measures of the suitability of water quality for the uses desired by humans and the environment, including ecosystem uses.

4. **Quality of water for human uses:** Measures of the quality of water used for drinking, recreation, industry and agriculture.

5. **Quality of water in the environment:** Measures of the quality of water supporting flora and fauna and related ecosystem processes.

6. **Water quality sustainability:** Composite measures of the degree to which water quality satisfies human and ecosystem needs.

C. **Human uses and health.** People benefit from the use of water and water-dependent resources, and their health may be affected by environmental conditions.

7. **Withdrawal and use of water:** Measures of the amount of water withdrawn from the environment and the uses to which it is put.

8. **Human uses of water in the environment:** Measures of the extent to which people use water resources for waste assimilation, transportation and recreation.

9. **Water-dependent resource use:** Measures of the extent to which people use resources like fish and shellfish that depend on water resources.

10. **Human health:** Measures of the extent to which human health may be affected by the use of water and related resources.

D. **Environmental health.** People use land, water and water-dependent resources in ways that affect the conditions of ecosystems.

11. **Indices of biological condition:** Measures of the health of ecosystems.

12. **Amounts and quality of living resources:** Measures of the productivity of ecosystems.

E. **Infrastructure and institutions.** The infrastructure and institutions communities build enable the sustainable use of land, water and water-dependent resources.

13. **Capacity of infrastructure:** Measures of the capacity of infrastructure to meet human and ecosystem needs.

14. **Efficacy of institutions:** Measures of the efficacy of legal and institutional frameworks in managing water and related resources sustainably.

We welcome your participation in and support of the Sustainable Water Resources Roundtable. Additional information can be found on the Roundtable at <http://acwi.gov/swrr>. Contact David Berry at davidberry@aol.com or Tim Smith at etsmithsiri@aol.com.