

Practical Ideas to Increase the Effectiveness of Ground Water Management and Recommendations for Future Directions in Ground Water Law

The Minnesota Ground Water Association (MGWA) is a professional organization concerned about protection of ground water resources through education and the availability of scientific information. MGWA members share an interest in conservation, protection and safe utilization of ground water, and represent consulting, industry, government, and academia.

At the urging of the Minnesota House of Representatives subcommittee on ground water, MGWA's November 2000 conference asked the question "***What is science telling us about the need for new ground water law in Minnesota?***" Approximately 130 attendees, many of the best of Minnesota's ground water professionals, listened to presentations on topics from pharmaceuticals to viruses, from nitrates to arsenic, and participated in discussions to generate possible answers to the question posed above.

This fact sheet summarizes their answers. We hope it will be useful to decision and policy makers as they wrestle with how best to manage Minnesota's ground water resources.

Attendees identified six major concerns:

- ◆ Emerging ground water contaminants
- ◆ Nitrates in ground water
- ◆ Sustainable ground water supply
- ◆ Stable funding for ground water programs
- ◆ Education
- ◆ Agency coordination

Emerging Ground Water Contaminants of Concern

Scientists are studying contaminants not previously considered a significant environmental concern including pharmaceuticals (e.g., lipid regulators, heart medicine, acetaminophen, and antibiotics),

pesticide degradation products (from the breakdown of chemicals used in the environment), and industrial compounds (detergent breakdown products, fire retardants, plasticizers etc.). Some of these compounds are known or suspected endocrine disruptors (alteration of normal endocrine system function). However, there is little toxicological information for many of these contaminants (or mixtures). The occurrence of these compounds in ground water is not well known. Laboratory analytical methods are being developed, but may not be readily available, and are expensive.

Actions Needed: Promote sustainable ground water protection, including:

- ⇒ Development of laboratory analytical methods for emerging contaminants;
- ⇒ Long term trend monitoring for emerging contaminants;
- ⇒ Toxicological assessment of emerging compounds and compound mixtures.

Nitrates in Ground Water

Nitrates exceed drinking water standards in some shallow aquifers in Minnesota, presenting a potential health concern. The 1989 Ground Water Protection Act addressed agricultural sources of nitrogen in ground water, but the program was not funded.

Actions Needed:

- ⇒ Identify and fix poorly constructed wells, inadequate individual septic systems, and agricultural sources of nitrate to ground water;
- ⇒ Promote best management practices (BMPs) for nitrate fertilizer;
- ⇒ Evaluate crop yield insurance and other incentive programs;
- ⇒ Require recording nitrate concentrations on property deeds.

Sustainable Ground Water Supply

Ground water resources are limited in some areas of Minnesota, and new development threatens existing resources in other areas.

Actions Needed: Enable existing programs to provide regional assessments and protection of ground water resources, including:

- ⇒ **Ground water recharge** - recharge zone protection, recharge chemistry, and water budgets and sustainable yield for heavily used aquifers;
- ⇒ **Development** - determine value of wetlands, assess long term impacts of urban development on ground water, and discourage water intensive development in areas of limited supply;
- ⇒ **Agriculture** - promote BMPs, evaluate risk/benefit derived from drainage reductions, and evaluate differences in regulations relative to wastewater treatment for large feedlot operators and municipalities;
- ⇒ **Conservation** - statewide assessment/regulation of dewatering operations, and alternative uses of non-potable ground water.

Stable Funding for Ground Water Programs

Attendees were frustrated about poorly funded programs, and emphasized the need to provide adequate funding for existing regulations.

Actions Needed:

- ⇒ Provide/protect long term funding for ground water activities;
- ⇒ Require effectiveness monitoring for BMPs, Conservation Reserve Enhancement Program (CREP), and Reinvest in Minnesota (RIM);
- ⇒ Increase funding to State mapping agencies (Minnesota Geological Survey, MGS, and Minnesota Department of Natural Resources, MDNR) to provide the hydrogeologic framework for developing conceptual ground water models.

Education

Minnesotans do not adequately recognize the true value of ground water, and it seems mysterious to many.

Actions Needed:

- ⇒ Communicate the value of ground water, and educate the public on the importance and cost of ground water research and conservation;
- ⇒ Promote public education in recharge areas, where ground water is highly vulnerable, or where ground water/surface water interaction is likely;
- ⇒ Promote public service messages about how to protect ground water, how to access ground water programs and data, and cross-linking of non-governmental organization and State agency web pages on ground water.

Agency Coordination

Many agencies and programs conduct ground water activities, which could be enhanced by coordination with other agencies.

Actions Needed:

- ⇒ Designate a lead agency for each program;
- ⇒ Designate and fund a ground water data coordinator for each agency;
- ⇒ Coordinate land and soil use data through a geographic information system (GIS).

These responses summarize opinion of MGWA members. We invite your feedback by sending questions and comments to the MGWA at this address. Please feel free to discuss the importance of these issues with your state legislators.

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