

WATER RESOURCES

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**SETTING CONDITIONS
FOR THE SUCCESS OF
INTEGRATED WATER
RESOURCES MANAGEMENT**



**AMERICAN
WATER RESOURCES
ASSOCIATION**

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Issue Theme:
Setting Conditions for the Success of Integrated Water Resources Management
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Integrated Water Resources Management (IWRM) principles support the sustainable management of water through collaboration, science, and community-based planning and implementation. At its best, IWRM applies knowledge from various disciplines and diverse stakeholders to devise and implement equitable and sustainable solutions to water-related issues.

Many IWRM successes result from inspired and inspiring efforts to overcome institutional, financial, social, and physical barriers. Elsewhere, specific efforts to set the conditions for success are undertaken by legislators, decision-makers, and communities, easing the effort to apply IWRM principles to water management challenges. Achieving sustainable management of water demands IWRM principles be made part of the everyday practice of professionals, agencies, and decision-makers.

In the following pages are three stories in which a change in the policies, budgets, authorities, laws, or governance structures allowed IWRM principles to flourish, and three insights that can ensure the success of IWRM when it is undertaken—at the policy or programmatic level.

Legislation Supporting IWRM in Nebraska

Carol J. Myers Flaute, Sarah A. Nevison, and Jennifer J. Schellpeper

Since 2004, Nebraska has made considerable progress with integrated management planning; this article highlights key legislative elements in a framework to support the success of this aspect of integrated water resources management (IWRM). State and local water management agencies jointly develop Nebraska’s integrated management plans and basin-wide plans, which seek to achieve a balance between water uses and supplies while managing hydrologically connected surface water and groundwater as an interconnected resource.

These plans are developed and implemented collaboratively by the Nebraska Department of Natural Resources (Department), which regulates

and manages surface water statewide, and 23 local Natural Resources Districts (Districts), which regulate and manage groundwater. The Districts, which are

organized along river basin boundaries and governed by locally elected boards, were created by the Nebraska Legislature in 1972. This decentralized institutional framework ensures a focus on local challenges and opportunities, but also raises the question: How can a group of principals who consume a commonly owned resource, like water, “organize and govern themselves to obtain continuing joint benefits when all face temptations to freeride, shirk, or otherwise act opportunistically” and not overuse the resource? This was the basic research question addressed by Elinor Ostrom in her book *Governing the Commons*. While Ostrom’s principles are not discussed specifically in this article, many of the legislative tools that have made IWRM in Nebraska successful follow her design principles.

Legislative Toolbox

The Nebraska Ground Water Management and Protection Act and other statutes provide the Department and Districts with authorities, tools, and guidance supporting IWRM. In 2004, the legislature adopted language directing the Department to determine which areas to designate as fully or overappropriated for surface water and hydrologically connected groundwater. Integrated management plans are required in fully appropriated areas, and both integrated management plans and a basin-wide plan are required in overappropriated areas. The legislation also listed required components and processes for each type of plan. In 2010, the legislature authorized Districts in the rest of the state to develop voluntary integrated management plans with



Figure 1. A key element of each of Nebraska’s integrated management plans and basin-wide plans is adaptive management. The Department and Districts implement a plan, collect and evaluate data to monitor progress, and then modify the plan as needed based on their evaluations.



Figure 2. Stakeholder participation is a key element of IWRM in Nebraska. In this photo, the Department, four Districts, and a stakeholder committee were working together to develop a basin-wide plan for the Republican River Basin.

the Department. In 2014, another law required basin-wide plans in some fully appropriated areas.

These statutes provide a toolbox of requirements, options, and incentives that support IWRM. Requiring plans in water-challenged areas directs efforts where most needed, whereas authorizing voluntary planning in other areas encourages proactive water management. Requiring collaboration between state-level surface water managers and local groundwater managers to develop and implement these plans promotes improved cooperation, communication, and data sharing. Statutes also specify a dispute resolution procedure in case disagreements arise. Monitoring plan implementation is also required, resulting in an adaptive approach to resource management, as the District and Department can decide together to modify a plan based on their evaluation of progress toward goals (Figure 1). Together, these statutes have provided tools for proactive water management across the state. Described below are

two other important ways state laws support IWRM in Nebraska: stakeholder participation and funding sources.

Stakeholders Are Key

Stakeholder participation is a key component of integrated management plan and basin-wide plan development. When developing voluntary integrated management plans and those required in fully appropriated areas, the Department and Districts must consult with stakeholders who rely on water from the affected area. Stakeholders are even more involved with developing integrated management plans in overappropriated

areas and required basin-wide plans, as statute requires the Department and Districts to consult and collaborate with stakeholders for these types of plans and work to reach agreement among all parties involved. These stakeholders help formulate, evaluate, and recommend goals, objectives, and management actions (Figure 2).

In addition to outlining the role of stakeholders, statute specifies interest groups that must be invited to participate as stakeholders. These include irrigation, reclamation, and public power districts; mutual irrigation or canal companies; and municipalities that rely on water

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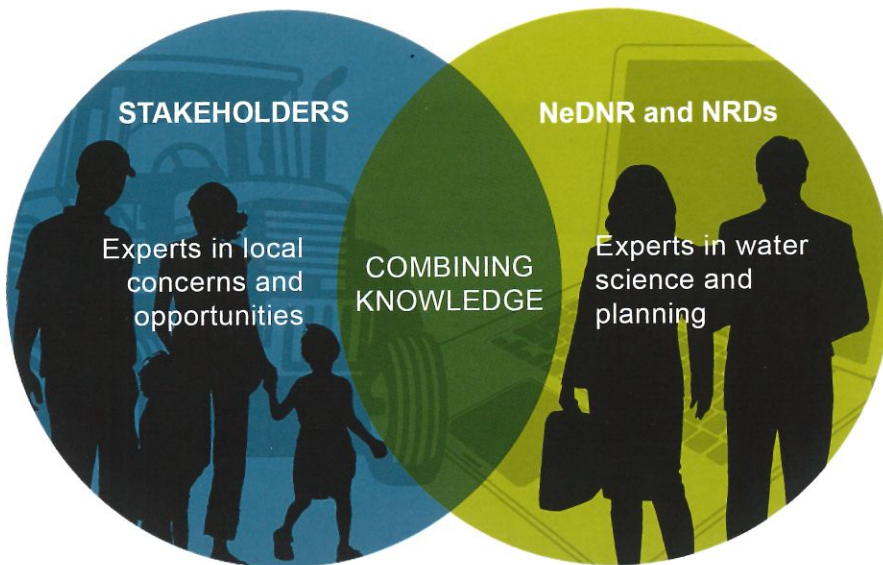


Figure 3. Stakeholder participation in plan development is required. Each plan benefits from the interaction of stakeholders' valuable local insight with the Department (NeDNR) and Districts' (NRDs') expertise in water management.

from the basin. The Department or the Districts may also choose to include other stakeholder interests, such as non-governmental organizations or other water users. For some types of plans, groundwater users, range livestock owners, and the Nebraska Game and Parks Commission are also included as

required invitees. Stakeholders provide valuable local insight into the unique water management concerns and opportunities of each area from the perspective of the water interests they represent (Figure 3).

Having stakeholders involved in the process has also improved relations among the state's water users. Prior to the adoption

of the first integrated management planning statutes in 2004, there was limited recourse within Nebraska law to address conflicts between surface water and groundwater users other than through the courts. Participating as stakeholders for plan development provides the opportunity to sit at the table together, learn from one another, and help shape a plan that will address conflicts over time as the plan is implemented.

Funding Opportunities

State law authorizes several funding sources that support IWRM projects. The Legislature appropriates money for the Department to carry out the Ground Water Management and Protection Act, which it uses to enhance data collection and analysis tools and to partner with the Districts on plan development and implementation. The Districts may levy property taxes to support water management, and if they have adopted an integrated management plan containing certain language, they can also issue

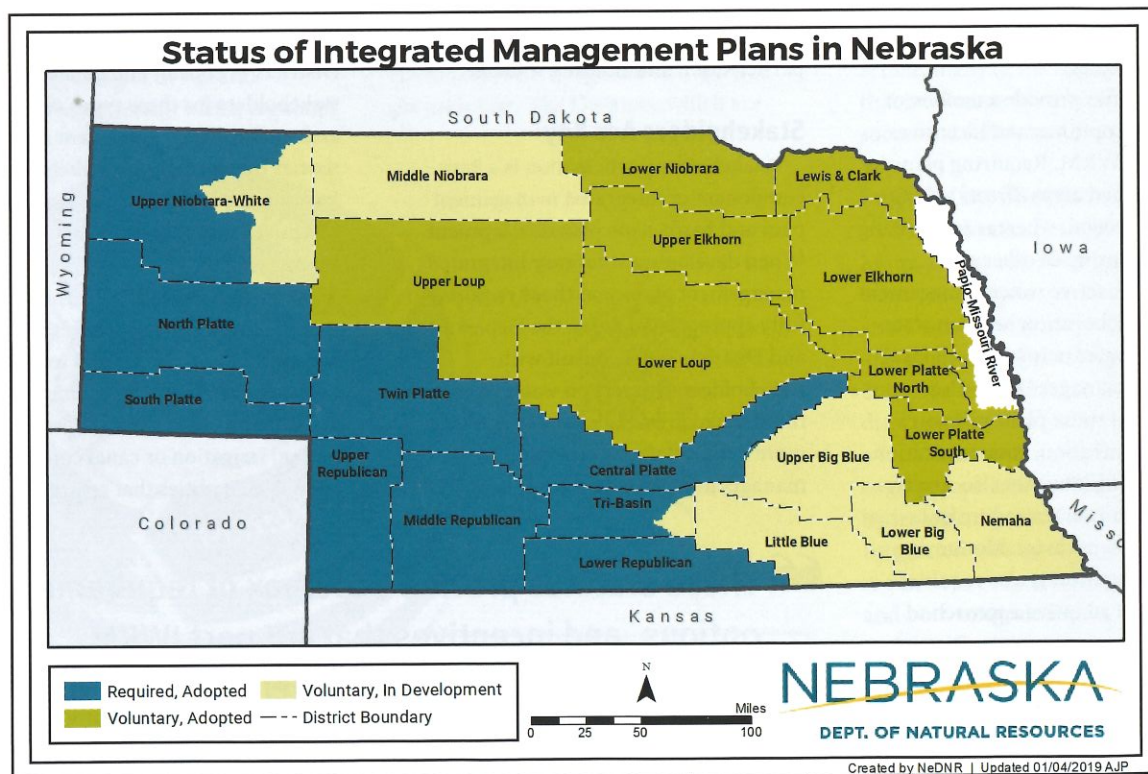


Figure 4. All 23 Natural Resources Districts (Districts) are now involved with the Department in some stage of development or implementation of an integrated management plan. Statute requires plans in areas designated as fully or overappropriated and allows plans in other areas.

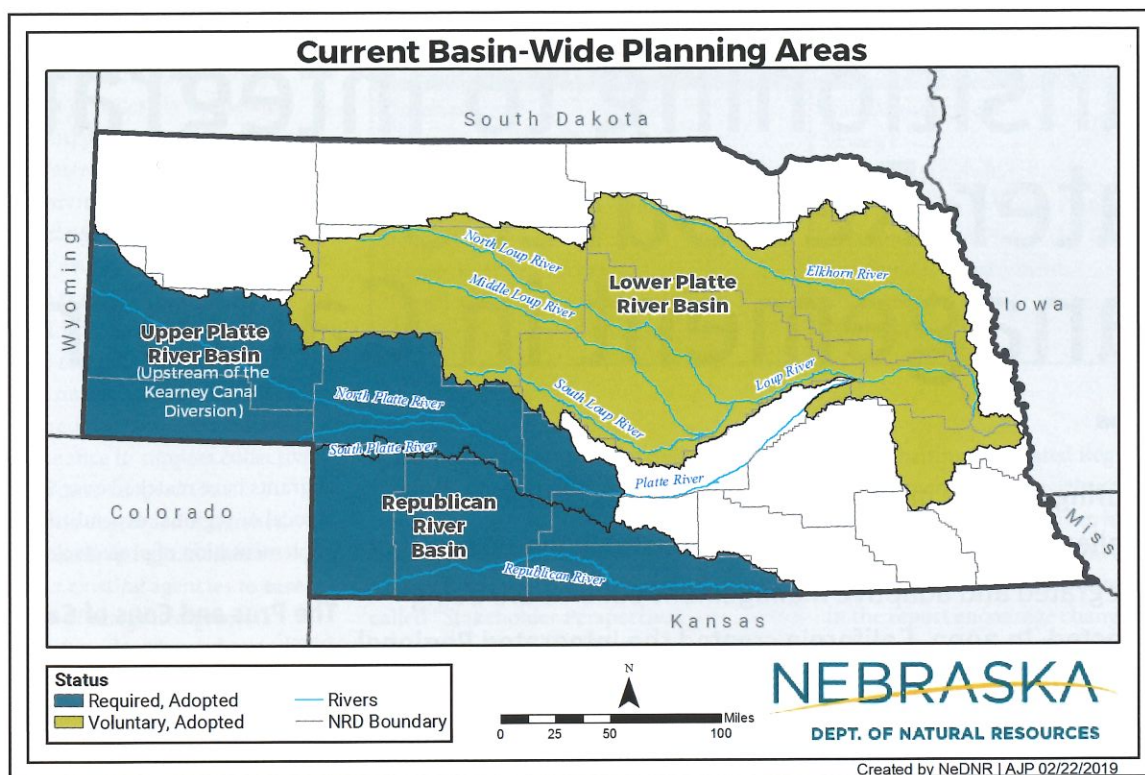


Figure 5. The Nebraska Department of Natural Resources and various Natural Resources Districts have jointly developed and are now implementing three basin-wide plans. Statute requires basin-wide plans in overappropriated areas and some fully appropriated areas.

bonds or collect an occupation tax on irrigated land to support IWRM.

Nebraska’s Water Sustainability Fund is available statewide to a variety of organizations; for the Districts to be eligible, they must be developing or implementing an integrated management plan with the Department, which has provided strong incentive to initiate voluntary integrated management plans. In fully or overappropriated areas, an additional source for projects that reduce consumptive use or enhance streamflows or groundwater recharge is the state’s Water Resources Cash Fund. Together, these funding sources are essential for sustaining IWRM in Nebraska.

IWRM in Action

Fifteen years after the passage of Nebraska’s first integrated management planning statute, a network of plans now stretches to all corners of the state. All 23 Districts are involved with the Department in some phase of development or implementation of an integrated management plan (Figure

4), and there are three basin-wide plans (Figure 5). Layering statutory requirements for both types of plans in the same geographic areas encourages consideration of both local and regional water issues and opportunities. For example, the basin-wide plan for the Upper Platte River Basin lays out a framework of goals and objectives that generally define what the Districts and Department want to achieve and create opportunities for collaboration, whereas the individual integrated management plans within the basin set local targets and actions to meet the basin-wide plan’s goals and objectives, taking into account each district’s own priorities, opportunities, and constraints.

Nebraska’s integrated management plans and basin-wide plans have improved collaborative water management throughout the state. They have facilitated inter-agency IWRM projects, such as using surface water canals to capture flood flows for aquifer recharge. They have helped the Department and Districts determine together where regulatory controls are needed. They have enabled

the Department and Districts to identify data needs and enhanced information sharing among agencies. These plans have also helped coordinate efforts to meet the State’s obligations under interstate water agreements. Nebraska’s legislation supporting IWRM has made these successes and others possible. ■

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