Eastern Snake River Plain Aquifer (ESPA) Comprehensive Aquifer Management Plan

FRAMEWORK

Presented to the

Idaho Legislature

by the

Idaho Water Resource Board

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List of Abbreviations

Ac-ft	Acre-feet
CAMP	Comprehensive Aquifer Management Plan
cfs	Cubic feet per second
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
ESPA	Eastern Snake River Plain Aquifer or Eastern Snake Plain Aquifer
IDWR	Idaho Department of Water Resources
IWRB	Idaho Water Resource Board (also abbreviated as "Board")

1.0 Executive Summary

This document presents a framework for the Eastern Snake River Plain Aquifer Comprehensive Management Plan, as requested by Senate Concurrent Resolution No. 136 enacted by the Idaho Legislature in April 2006. The Idaho Water Resource Board (Board) worked with a team of facilitators, and stakeholders from across the Eastern Snake Plain, to develop goals and objectives for aquifer management, explore alternatives for positively impacting the water budget of the aquifer and outline funding strategies. This framework recommends a process for the development of the Comprehensive Aquifer Management Plan (CAMP), and suggests interim measures which can be taken to positively impact the aquifer while the CAMP is developed.

Supply of and demands for water are out of balance in the Eastern Snake River Plain. Water right holders report that they have been responding to water shortages by changing crops and adjusting production. They have also pursued administrative and legal remedies to address the decrease in water supply. The connection between the surface waters of the Snake River and the underground waters of the Eastern Snake River Plain Aquifer (ESPA) necessitates coordinated management of both resources. The Board's purpose in developing this Framework is to fulfill the request from the Legislature and exercise the Board's responsibility to plan for the management of the waters of the state. While the Board holds planning responsibility and may implement projects or programs to aid in the management of water, the Director of the Idaho Department of Water Resources holds responsibility for administering water rights in accordance with state law.

To guide development of the CAMP, the Board adopted the following goal and objectives for management of the ESPA:

Goal: Sustain the economic viability and social and environmental health of the Eastern Snake Plain by adaptively managing a balance between water use and supplies.

Objectives:

- Increase predictability for water users by managing for reliable supply
- Create alternatives to administrative curtailment
- Manage overall demand for water within the Eastern Snake Plain
- Increase recharge to the aquifer
- Reduce withdrawals from the aquifer

This report explores alternatives for management of the ESPA. Board recommendations associated with measures to be taken while the CAMP is being developed, and measures to explore further in the CAMP, are outlined in the following tables.

Interim Measure	Recommendation
Spring Recharge 2007	When conditions permit, conduct spring recharge using Board water rights and $150,000 in Board funds.
Increase CREP Enrollment	Support the State CREP Enhancement Committee, including efforts to correct misconceptions regarding program requirements; ask staff to review other issues raised by stakeholders, and support IDWR efforts to enroll land with both surface and ground water rights.
Targeted Demand Reduction	Pursue targeted reductions in water demand through market-based transactions. The Board requests an additional $10 million from the Legislature to implement this recommendation in 2007.

Management Alternative	Recommendation
Managed Recharge	Pursue a managed recharge program, using the Board's pilot recharge projects and approved studies of three recharge sites to refine cost estimates and potential benefits
Incidental Recharge	Quantify and develop an understanding of the role of incidental recharge in the ESPA; investigate and develop a proposal for the use of incentives or other strategies to encourage 'no net loss' of incidental recharge
Site-specific Augmentation	Explore site-specific supply augmentation opportunities during the CAMP development process. The Board anticipates that these actions will provide only temporary relief, and apply to a limited number of cases.
Additional Surface water Storage	Explore additional surface water storage opportunities, recognizing financial and environmental concerns.
Converting Groundwater Acres to Surface water	Perform feasibility studies to further identify opportunities for groundwater to surface water conversions

The Board intends to work with the Legislature, Governor, and stakeholders to explore and pursue all viable sources of funding to implement management alternatives that will be developed in the CAMP. The Board seeks funding for the interim measures listed in Section 6.0 of this report, including an additional ten million dollars in FY2007 for targeted demand reduction through market-based transactions, which may include buyouts and/or subordination agreements. Implementation of the interim measures outlined in the framework will begin to address water conflicts while the comprehensive management plan is developed. It is recognized that a significant change in the ESPA water budget is necessary and required to reach a balance between water use and supply. While this report advocates and supports all voluntary approaches to such water budget change, it is also recognized that water rights administration will have a significant effect on the management of the ESPA.

The Board recommends creation of a 14-member Advisory Committee to develop the Comprehensive Aquifer Management Plan. Eight interest groups are identified in Section 8.0 of this report, and the Board will seek nominations from stakeholders in selecting the members of

this Committee. The Board anticipates that completing the CAMP will require 16 months, and $850,000 in funding for facilitation and technical support.

The Comprehensive Management Plan to be created by the Board and enacted by the Legislature will not end all litigation between parties over water rights issues in the Eastern Snake Plain. The legal questions that have been raised must be answered by the courts. However, the Framework and the Comprehensive Management Plan will outline a means for addressing the core issues of increasing water supply, decreasing water demands and identifying voluntary mechanisms to meet water user's water needs in the ESPA.

This document was prepared by CDR Associates and refined and approved by the Board. CDR solicited and summarized extensive public input for the Board during the decision making process. For more information regarding ESPA stakeholder interests and concerns generated during the development of the Framework see Appendix C. Additionally, the report has been written for the legislature and members of the public, and assumes some familiarity with Eastern Snake Plain hydrology. For those not familiar, please see Appendix A for a brief overview.

2.0 Introduction and Project Description

2.1 Background

Senate Concurrent Resolution No.136, passed by the Idaho Legislature in April of 2006, requested that the Idaho Water Resource Board (IWRB) "expeditiously pursue, with support from the Idaho Department of Water Resources, development of a comprehensive aquifer management plan for the Eastern Snake River Plain Aquifer for submission to and approval by the Idaho Legislature." The Resolution directed the Board to solicit public input regarding development of the "goals, objectives and methods" for aquifer management from "affected water right holders, cities and counties, the general public and relevant state and federal agencies." The Legislature also asked the Board to provide a status report during the next legislative session, together with a "framework for the plan, including appropriate interim goals and objectives in accordance with state law, a method to fund implementation of the plan and a time schedule for finalization of the plan."

The IWRB hired Diane Tate and Jonathan Bartsch of CDR Associates to provide neutral facilitation assistance in the development of a Framework. CDR Associates initiated the Framework process by conducting over 90 in-person and phone interviews with affected water rights holders and other stakeholders in August and September, 2006. The Board held public meetings, facilitated by CDR Associates, in October and January to receive input on the ESPA Framework process, and convened a series of working group meetings to develop the management alternatives presented in this report. Appendix B provides a complete listing of all meetings held in conjunction with the process of developing this framework.

This document, a Framework for a Comprehensive Management Plan of the Eastern Snake River Plain Aquifer, outlines goals and objectives for aquifer management, management alternatives, proposed funding strategies to implement management actions, and suggested interim measures to be taken while the Comprehensive Plan is developed. The Framework provides an outline of the Comprehensive Plan development process, and offers an opportunity for Legislative feedback on proposed management alternatives.

2.2 Purpose of ESPA Management

In Concurrent Resolution 136, the Legislature listed factors driving the need for a comprehensive management plan, including:

- Reduced spring discharges and areas of declining aquifer levels resulting from extended drought, changes in irrigation practices and ground water pumping;
- Conflict between water rights holders stemming from insufficient water supplies to satisfy existing beneficial uses;
- The threat to the state's economy posed by ongoing conflict between water users;
- Resources already committed to the Conservation Reserve Enhancement Program (CREP);
- Previous actions taken by the Legislature to manage the ESPA, including legislation to create water measurement districts and groundwater districts, and previous funding for project implementation and mediation between parties;

- Previous actions taken by IDWR, including the expansion and creation of water districts for the purposes of conjunctive administration;
- The authority vested in the Board to cooperate in water studies, planning and research, and the work already done by the board to inventory data and information related to the ESPA;
- The good faith efforts of water rights holders to contribute to a resolution to the conflict; and
- The determination of the legislature to facilitate and encourage a resolution of the surface/groundwater rights conflict that respects existing water rights and protects the welfare of the people of the state of Idaho by ensuring the aquifer is managed in accordance with state law.

Supply of and demands for water are out of balance in the Eastern Snake River Plain. Water right holders report that they have been responding to water shortages by changing crops and adjusting production. They have also pursued administrative and legal remedies to address the decrease in water supply. The Board's purpose in developing this Framework is to fulfill the request from the Legislature and exercise the Board's responsibility to plan for the management of the waters of the state. While the Board holds planning responsibility and may implement projects or programs to aid in the management of water, the Director of the Idaho Department of Water Resources holds responsibility for administering water rights in accordance with state law. This Framework focuses on actions that can be taken by the Board to positively impact the ESPA water budget – increase supply or reduce demand – that will show results in the short term (5-10 years) and long term (10-30 years). While administration of water rights plays, and may continue to play, a major role in the State's efforts to manage the aquifer, such administration remains the purview of the Department and is not the focus of the Board's efforts to create a Comprehensive Plan for the management of the ESPA. The parties involved in conflicts over water rights in the ESPA recognize that if implementation of management alternatives does not sufficiently improve the condition of the aquifer, the remaining management tool is water rights administration pursuant to state water law.

In 2001, the Idaho Legislature and others funded a multi-year effort to update and enhance a groundwater model of the Eastern Snake River Plain Aquifer. The Board recommends use of this model, which continues to be updated and improved, to quantify and analyze the potential benefits and other impacts of management alternatives to be explored during the development of the CAMP.

3.0 Goal and Objectives

This section presents a proposed aquifer management goal and objectives to help meet that goal. It explores possible water supply and demand adjustment targets to determine whether management actions implemented effect progress toward the goal and objectives in the short (5 years), medium (10 years) and long term (30 years). Should this goal and these objectives be approved by the Legislature, they will become the foundation of the Comprehensive Aquifer Management Plan (CAMP).

3.1 Criteria for Goal and Objectives

The Board consulted the following criteria when drafting the goal and objectives:

Goal(s) for management of the ESPA should:

- Be realistic and achievable
- Be measurable by objective standards
- Actually "solve the problem"
    - Less litigation
    - Greater predictability
    - Better outcomes for water users
- Be consistent with state water law

3.2 Proposed Goal and Objectives

The Board proposes a single goal for management of the ESPA:

> Sustain the economic viability and social and environmental health of the Eastern Snake Plain by adaptively managing a balance between water use and supplies.

Establishing an ESPA goal provides a benchmark against which to measure the efforts undertaken. Supporting this goal are several objectives:

- Objective A: Increase predictability for water users by managing for reliable supply
- Objective B: Create alternatives to administrative curtailment
- Objective C: Manage overall demand for water within the Eastern Snake Plain
- Objective D: Increase recharge to the aquifer
- Objective E: Reduce withdrawals from the aquifer

In Section 4.0 of this report, proposed management actions are tied to these objectives, each of which is geared toward accomplishment of the overall goal.

3.3 Monitoring

The CAMP will assess proposed management alternatives to predict the beneficial effect each funded program will have on the aquifer, and on achieving the stated goal. Frequent monitoring will allow the Board to assess how well management actions are working, and take steps to

adjust activities to make them more effective, or redirect funding from those that aren't showing results to those that are. During the CAMP development process, a detailed monitoring plan will be developed by the Board in collaboration with stakeholders to detail how this "adaptive management" process will function.

Several factors may either positively or negatively influence achievement of the goal and objectives outlined above. These include climate related extremes such as drought, changes in conveyance efficiency or on-farm water uses which reduce recharge to the aquifer, and funding available for implementation of management alternatives. The management alternatives section of this document discusses measures to achieve many of the objectives in the previous section, and funding required. The Board plans to use the existing ESPA groundwater model during the CAMP to determine the level of management – minimal, moderate, or aggressive – necessary to achieve the objectives.

4.0 Management Alternatives

This section explores management alternatives discussed during the process of developing the Framework, and provides Board recommendations on which alternatives to consider further in the CAMP. The description of each alternative documents some of the risk factors and outstanding questions raised, as well as potential benefits. Management alternatives are presented in three categories: those which increase available water supply, those which reduce withdrawals from the aquifer, and those which decrease overall demand for water within the Eastern Snake River Plain. A table comparing each management alternative can be found in Appendix D.

4.1 Alternatives to Increase Supply

4.1.1 Managed Recharge

Board Recommendation: Pursue a managed recharge program as a management alternative in the Comprehensive Aquifer Management Plan. The Board's pilot recharge project at the W-Canal site together with Board-approved studies of three recharge sites will be used to refine cost estimates and potential benefits of managed recharge from Snake River and tributary water sources. Interim recharge measures are discussed in Section 6.0.

Managed recharge refers to the intentional placement of water on designated recharge sites for the purpose of causing that water to infiltrate into the underground aquifer. Recharge temporarily stores excess surface water in the aquifer, allowing that water to re-emerge as spring flow at a later date. In November 2006, the Board approved $350,000 for feasibility studies and geological testing of several potential recharge sites on the ESPA, as an interim measure. Creating recharge facilities on these sites would require additional construction cost, as well as operational and monitoring expenses. The three recharge sites currently under investigation are at Sugarloaf, along the Milner-Gooding system and on the Aberdeen Springfield system. Recharge sites would be designed to accept at least 200 cfs, or approximately 400 acre–feet per day.

For the purposes of this report, managed recharge in sites constructed for that function is considered different from incidental recharge, such as seepage from unlined irrigation canals. Managed recharge may also rely on supplemental water sources, outside of the Board's established recharge rights, such as leased water. Limiting factors include the availability of natural flow for recharge, technical challenges, the cost of acquiring water from the rental pool, and the capacity of canal systems to deliver recharge water to recharge sites. In addition, measurement of water diverted and water delivered must be conducted to quantify the actual amount of recharge taking place.

Several factors influence the efficiency, effectiveness and cost of recharge. These factors are outlined below, for consideration in the development of the CAMP.

Source of recharge water

- Recharge rights held by the Board provide a no-cost source of water for recharge purposes, but can only be used when these rights are in priority. This limits the amount of water available for recharge and the length of time it is available for diversion. Recharge rights are most likely to be in priority during the irrigation off-season, when the canal facilities required to transport water from the river to recharge sites are not normally maintained. When recharge rights are in priority, the Board must be able act quickly and send that water to recharge sites, requiring advance contracts with canal companies to compensate them for costs occurred in "wheeling" the water. The Board must also be able to cease diversions for recharge if the right falls out of priority.
- The Board may opt to purchase water from the rental pool for recharge purposes. This will increase the cost of recharge. If the Board purchases storage water, sellers risk not having that portion of their storage re-fill based on the current rental pool rules. Any recharge program that makes use of facilities other than existing canals will necessitate the purchase of water from the rental pool. Additionally, if the Board leases natural flow rights, those must be in priority in order for diversion to take place. Determining the conditions under which storage right holders would be willing to sell water for a recharge program is necessary.
- While incidental recharge is exempt from the Department of Environmental Quality (DEQ) water quality regulations, any managed recharge program will need to develop monitoring plans to protect water quality.
- Outstanding questions include the effect of dam operations by the Bureau of Reclamation on the availability of water for recharge, including the timing of flood control and flow augmentation releases. Additionally, some agreements may place limits on the use of water for recharge in the winter time that need to be addressed.

Additional Opportunities

- Opportunities to build small-scale recharge sites may exist throughout canal systems on the Eastern Snake Plain – on-farm storage reservoirs, re-regulatory storage, etc.
- Tributary recharge water rights held by the Board, and the potential to purchase additional tributary water or water rights, represent another opportunity to increase overall recharge.
- Other states have used managed recharge programs, including injection wells, to deal with aquifer supply issues. What can be learned from the experiences of these states that might be relevant to the Eastern Snake Plain?

Targeting Recharge Benefit

- In the Eastern Snake River Plain, the aquifer connects to the river in many places, including through springs discharging into reservoirs or from canyon walls. The Board recommends targeting spring flows that have declined over past years as a potential target for a managed recharge program. The CAMP development process should identify the extent to which managed recharge could improve selected spring flows (compare viable recharge sites with spring effects using the groundwater model) and optimize the location of recharge sites to achieve maximum benefit.

Incentives to Participate

- A full-scale managed recharge program requires cooperation from many diverse entities within the Eastern Snake River Plain. Stakeholders encouraged exploration of incentive structures that would support participation in a recharge program.

Risk Factors

- Several environmental factors "beyond control" could influence the success of recharge in any given year. These include weather (example: ice could prevent opening of canals), snowpack (less water in the basin means less available for recharge), and surface water quality impairments which may have an impact on groundwater quality if tainted water is used for recharge in constructed sites.
- Operational risk factors include the ability of the recharge program to be responsive to rapid changes to both take advantage of the times when the Board's recharge right is in priority, and cease diversion when the right falls out of priority.
- The construction of managed recharge sites may trigger liability concerns. Two potential issues raised by stakeholders are impairment of water quality for drinking water wells and commercial wells located inside the area of influence of a managed recharge site, and creation of standing water environments which, without insect control, could become breeding grounds for mosquitoes.
- Federal Endangered Species Act and Clean Water Act issues if federal lands or facilities are involved.

4.1.2 Incidental Recharge

Board Recommendation: Quantify and develop an understanding of the role of incidental recharge in the ESPA during development of the CAMP. Investigate and develop a proposal for the use of incentives or other strategies to encourage 'no net loss' of incidental recharge.

Incidental recharge occurs when the normal operation of a water distribution system or on-farm water use practices results in infiltration that contributes to water levels in the aquifer. Experts estimate that incidental recharge accounts for a significant amount of the water entering the aquifer today. Activities that contribute to incidental recharge include: normal operation of unlined canal systems, operational spills within canal systems, flood irrigation, and irrigation of highly permeable land. To cope with decreased water supply, canal companies and irrigation districts could choose to invest in canal lining to improve delivery efficiency, however these actions may impact other water users by decreasing incidental recharge. Other operational changes could have similar effects, and reduce the total amount of water entering the aquifer each year, impacting the water budget. Continuing to operate systems with no efficiency improvements is a no-cost way to continue incidental recharge, however not improving systems may represent a loss of water for some users, and a hidden cost of keeping things the way they are today.

Factors affecting the role of incidental recharge in the ESPA water budget and the CAMP process include:

- Incidental recharge is difficult to document and quantify, due in part to the fact that canal systems (where significant incidental recharge occurs) operate with on-line flow measurement systems that meet their daily operation needs, and more extensive measurement and monitoring would be necessary to determine how much water was lost through seepage. Additionally, it is difficult to know exactly how much water lost to seepage ends up in the aquifer.
- From a water delivery perspective, water that seeps from the bottom of the canals is wasted, in that it represents water diverted from the river that cannot be given to an individual farmer. However, that "waste" is "gain" for the aquifer. When there is shortage in a water system, and all users are not getting their full allocation, encouraging incidental recharge may be viewed as wasteful by some, and at odds with the traditional approach to shortage, which is to conserve the resource.
- Should fees be assessed to fund implementation of management alternatives, some organizations or individuals may view incidental recharge from their operations as an activity which should count against their assessed fees.

4.1.3 Site-Specific Supply Augmentation

Board Recommendation: As a solution to shortages in water supply, explore site-specific supply augmentation opportunities during the CAMP development process. The Board anticipates that these actions will provide only temporary relief, and apply to a limited number of cases.

Some conflict in the Eastern Snake River Basin originates with senior water rights that have not had sufficient water available to fully satisfy the right over an extended period of time. Recharge and other management alternatives may positively impact water availability, most likely in the medium or long term. If water uses can tolerate a different source of water, an option for meeting demand in the short term may be augmenting supply on a case-by-case basis. This provides an alternative to market-based demand reduction or continued litigation. Some water users require water with specific properties. As an example, aquaculture requires water within a temperature and quality range that is suitable for producing fish. In addition, businesses often make operational decisions based on projections of the lowest available flow during the growing cycle, raising the importance of predictable supply. Some senior aquaculture users are currently among those without access to the full amount of the historic use of water right, and the CAMP development process should explore opportunities for site-specific supply augmentation with these users, and with others whose needs could be temporarily satisfied from other sources.

4.1.4 Additional Surface Water Storage

Board Recommendation: Explore additional surface water storage opportunities in the CAMP recognizing the financial and environmental obstacles involved.

Additional surface water storage reservoirs hold the potential to increase the available water supply in the ESPA and as a result feed economic growth in the region. Opportunities include adding capacity to existing dams to create more storage in reservoirs, small off-channel reservoirs that would also feed recharge, and new reservoir sites. Significant financial costs and environmental impacts are associated with these alternatives. The potential benefit associated with additional storage capacity should be compared to the benefits and costs of other management alternatives.

4.2 Alternatives to Reduce Withdrawals from the Aquifer

4.2.1 Conservation Reserve Enhancement Program

Board Recommendations: The Board will focus on the following activities to help ensure the CREP program meets its enrollment and water savings goals:

- Support efforts of the State CREP Enhancement Committee to improve the effectiveness of CREP, including outreach efforts to clarify program requirements and correct any misconceptions.
- Forward issues raised by stakeholders to staff and receive reports at future Board meetings including, opportunities to modify the program with FSA to improve CREP effectiveness.
- Support IDWR efforts to enroll land owners that have both surface and ground water rights. Landowners must demonstrate that activities provide groundwater savings.

The Federal Farm Service Agency (FSA) and the State of Idaho launched a unique Conservation Reserve Enhancement Program (CREP) in 2006. The Federal Commodity Credit Corporation funds this and other conservation programs nationwide to conserve water and improve wildlife habitat. The state must contribute 20% of program cost in cash or in-kind services. CREP provides payments to land owners in exchange for a 14 or 15 year contract under which the land owner commits to not irrigate or farm the land, and establish suitable grassland cover.

Up to 100,000 acres may enroll in Idaho's CREP program, with a projected water savings of approximately 200,000 acre-feet per year. Within the first 8 months of the program, however, only 42,190 acres have been submitted and 16,090 acres enrolled. Anecdotal evidence suggests some farmers enroll in CREP as a way to transition out of farming, possibly into retirement, while maintaining some income. Some CREP submissions contain land that is expensive to farm - either marginal lands with low returns, or odd-shaped pieces requiring extra labor. Once the 15 year contract period is up, land owners may resume farming or sell the property and the water rights without penalty.

The large amount of federal dollars leveraged by state participation in the CREP program makes it a cost-effective way to achieve water savings. This section explores factors contributing to the current status of the program.

CREP applications will no longer be accepted once:

- The 100,000 acre enrollment ceiling is reached; or
- December 2007 arrives; or
- A curtailment order is issued (any of the curtailed lands are not eligible for CREP).

Current program limitations to enrollment:

- Only 25% of the farm acreage in each county may enroll in a CRP/CREP Federally-funded conservation program. Some Eastern Idaho counties are at or near that ceiling.
- The federal government has set a limit on the payout any individual farmer may receive from conservation programs in any one year of $50,000 (federal dollars only).
- Unless ground is within a "priority area", it must be designated as "highly erodable" to be eligible for CREP.
- Cropland must meet appropriate cropping history for the period 1996 through 2001 and must have been irrigated with ground water or surface water sources other than the main stem of the Snake River, at a rate of not less than ½ acre-foot per acre for four out of the six years from 1996 to 2001.
- Land must have been irrigated within the last 24 months or be included within an IDWR approved mitigation plan.

Reasons why otherwise eligible land has not been submitted for CREP enrollment:

- Value of keeping land in production is greater than the amount the CREP payments and state incentive payments.
- Farmers need to maintain large tracts to make farming economically viable, and cannot afford to put a portion of their land out of production.
- A 15 year commitment limits flexibility – anyone opting out of the CREP program must repay all benefits received (including a purchaser of CREP-enrolled acreage).
- Some may not have the correct information about eligibility, including assuming that if their land is not highly erodable, it is not eligible (exception in "priority areas"). Also, treatment of water rights for land that is enrolled in CREP may not be clear.
- Land is within a county where the combined 25% CREP/CRP cap has been reached.
- The option to graze CREP land every third year was removed, eliminating the ability to make additional income with CREP enrolled acreage.

4.2.2 Converting Groundwater Acres to Surface Water

Board Recommendation: Perform feasibility studies to further identify opportunities for groundwater to surface water conversions and develop cost estimates as a part of the CAMP process. Compare benefits and challenges of providing water for conversions with the use of water for managed recharge.

Several areas of the Eastern Snake River Plain which previously relied on groundwater for irrigation have converted to surface water use, and no longer pump from the aquifer during the months when surface water can be delivered. These actions have reduced depletions to groundwater resources and possibly increased incidental recharge from conveyance systems and water application to crops, but have required significant infrastructure investment. During development of the CAMP, the Board recommends exploration of additional acreage currently served by groundwater which could be converted either full or part time to surface water, and examine the financial costs and aquifer benefits of these conversions.

Some considerations:

- The capacity of the existing canal systems limits the amount of water that can be delivered to converted acres at high-demand times of the growing season (especially July and August). There may be opportunities to pursue canal system modifications (on-line re-regulatory storage) or part-time surface water delivery, with reliance on groundwater during peak times.
- Without re-engineering of canal systems, stakeholders believe mainly small, location-specific conversion opportunities exist in the service areas of canal companies.
- Canal companies serving already converted acreage augment their natural flow and storage rights with water purchased from storage owned by others in order to have enough water to serve the converted acres. If new acreage was converted, canal companies would most likely have to purchase storage water to serve these tracts.

4.2.3 Administrative Curtailment

The Board's purpose in developing this Framework is to fulfill the request from the Legislature and exercise the Board's responsibility to plan for the management of the waters of the state. While the Board holds planning responsibility and may implement projects or programs to aid in the management of water, the Director of the Idaho Department of Water Resources holds responsibility for administering water rights in accordance with state law. While administration of water rights plays, and may continue to play, a major role in the State's efforts to manage the aquifer, such administration remains the purview of the Department and is not the focus of the Board's efforts to create a Comprehensive Plan for the management of the ESPA. If implementation of management alternatives developed during the CAMP process does not met the set goal and/or significantly reduce the number of future calls, the remaining management tool is water rights administration pursuant to state water law.

4.3 Alternatives to Decrease Overall Demand for Water within the Eastern Snake Plain

4.3.1 Targeted Demand Reduction through Market-Based Mechanisms

Board Recommendation: Pursue targeted reductions in water demand through market-based mechanisms. The Board requests an additional $10 million from the Legislature to implement this recommendation in 2007. (Also covered in Interim Measures, Section 6.0)

Senior spring water rights, especially in the Thousand Springs area, have experienced significant decrease in flow from their decreed rights. Given all of the changes which have occurred since spring flow peaked mid-century, it is unlikely that every spring water right can be completely satisfied through aquifer improvement resulting from implementation of the Board's CAMP. Pursing market-based approaches to reducing demand, which may include buying down select water rights, seeking subordination agreements, or buying out some rights and transferring remaining water to others, may help reduce the need for these water rights holders to seek administrative remedies for their decline in supply. Outside the Thousand Springs area, similar opportunities exist to reduce the need for water rights holders to seek administrative remedies by purchasing all or part of a water right.

Market-based approaches may reduce the number of calls or provide economic relief to water rights holders experiencing shortage, however purchasing water rights should be viewed as a short-term, stop-gap measure, and not a substitute for management actions which may improve the long term balance between supply and demand in the ESPA.

4.4 Cost of Management Alternatives and Expected Benefit

Appendix D includes a table listing each management alternative discussed in this section, a range illustrating potential benefit from that alternative, and an estimate of cost. No feasibility or other studies were conducted to develop these figures – they represent the best estimates of Board staff given information currently available. These numbers will be refined as the process of developing the CAMP continues. This table is provided to illustrate the relative magnitude in both cost and benefit of each alternative recommended for consideration during the CAMP development process.

5.0 Funding Mechanisms

Board Recommendation: Pursue all viable sources of funding to support the management alternatives. Through consultation with the legislature and the Governor's office, a determination will be made regarding acceptable funding principles. The Board recommends funding for the CAMP process outlined in Section 8.2 and identified interim measures listed in Section 6.0.

Development of the Comprehensive Aquifer Management Plan, implementation of interim management measures and implementation of management alternatives will all require substantial financial resources. Consistent with Senate Concurrent Resolution 136 that "the report should set forth a method to fund implementation of the plan," the following section outlines various stakeholder perspectives on funding principles, funding needs, and an evaluation of funding options. While the Framework does not target specific annual funding requirements, it is anticipated that a dedicated source of funding will be required to implement the Plan, using resources from the state and contributions from ESPA water users.

In 2006, the Idaho Legislature passed Resolution HB 374 to provide funding for the following items: increased monitoring; measurement of groundwater levels and return flows; additional gages; outfitting groundwater wells with monitoring instruments; and refinements to the ESPA groundwater model. The legislation outlines a fee plan based on deliveries that includes Water Districts which are hydraulically connected to the ESPA, including 100, 110, 120, 130, and 140. An interim advisory committee is currently examining this monitoring funding mechanism and possible alternatives. Some have suggested modifying the funding formula by instituting a cap and accounting for conveyance losses. For the purposes of this report, it is assumed that the majority of funding needs for monitoring and groundwater model refinements have been addressed in the recent legislation. As a result, this report focuses on principles and approaches for continuing the planning process and funding the management alternatives.

5.1 Funding Principles

Through the public input process, numerous principles that could guide the development of a funding strategy were identified. There are differences in stakeholder perspectives regarding how the aquifer should be managed and how management activities should be funded. Through the CAMP process, specific aquifer benefits and costs associated with management alternatives will be developed which will assist in understanding and support for a dedicated source of funding.

The following is a list of funding principles *suggested by stakeholders* during the development of the Framework. Some of these principles are mutually exclusive – they are listed here together to provide the Legislature with examples of the divergent views held by stakeholders:

- No one subset of water users should bear the entire burden of paying for management alternatives.
- The prior appropriation system should determine who is obligated to pay and who is not; for example, senior water users should not pay for impacts created by junior water users.

- The state should be responsible for addressing the funding needs required to manage the aquifer.
- The distribution of "who pays what" should be equitable.
- Some funding should come from statewide sources, and some from ESPA water users. The state should support aquifer management in the same way the federal government is supporting the CREP program – three parts state funding to one part local.
- One-time costs should be borne primarily by the state, including interim measures, the CAMP development process and buy-outs.
- Everyone who benefits from ESPA management should be part of the funding solution.
- Different funding mechanisms should be brought together to generate the necessary resources.
- Funds raised should be clearly identified for specific activities that "solve the issue" and not for activities that provide temporary fixes.
- Ensure administrative systems for collecting funds are simple and efficient.

5.2 Funding Needs

Implementation of the management plan will require funding for three types of activities:

- Management alternative implementation, including CAMP development, feasibility analysis, engineering, and construction; purchase of water rights, etc.;
- Ongoing refinements to the ESPA groundwater model to support analysis for management purposes; and
- Additional funding for IDWR for ongoing monitoring and implementation of the management plan on behalf of the Board.

As noted in the beginning of this section, the majority of costs for monitoring enhancements and refinements to the groundwater model will be addressed through HB 374. Numerous stakeholders raised the additional issue that IDWR does not currently have adequate resources to process water rights transfer paperwork in a timely fashion, and perform other tasks necessary for implementation of management alternatives. Some supported an examination of the additional demands that will be placed on IDWR during the development and implementation of the CAMP, and possible additional funding for the Department, to ensure that the State can act as a resource at all stages of the process.

5.3 Funding Options

The following potential dedicated and temporary funding sources were identified through stakeholder input.

Permanent and/or temporary funding sources:

- Dedicate some portion of the existing sales tax to a "water fund" to be used by IWRB where needed across the state.
- Statewide per-head tax (one dollar per person) to be used by IWRB for water needs across the state.
- Per acre or acre-foot levy for groundwater users and surface water irrigation users for water needs in the ESPA.

- Creation of a conservancy district across the ESPA with taxing authority.
- Increase to annual property tax to build a "water fund."
- Per well fee for domestic well users in the ESPA.
- Surcharge for municipal customers in the ESPA.
- Transferable tax credits for conservation easements.
- One time transfer from state government surplus or severance tax.

5.4 Evaluation of Funding Options

This section provides an evaluation of the funding options based on input received from stakeholders during development of the Framework. Many stakeholders strongly support development of a funding strategy that relies mainly, if not completely, on state sources of funding. This view originates in the beliefs that the Eastern Snake Plain water situation impacts the entire state, that the State helped create the "problems," and that the entire state should be part of the solution. Others advised balancing state funding with a significant financial contribution from ESPA sources, to demonstrate a commitment to improving the health of the aquifer from those that derive direct benefits from the water.

State Contribution

During the Framework process stakeholders supported the pursuit of state funding for one time efforts, including market-based demand reduction, conducting the CAMP development process, supplemental CREP incentive payments and interim recharge measures. Other stakeholders strongly supported full state funding for efforts to manage the ESPA, while others advocated for a state/ESPA cost share similar to the CREP program (one part state and three parts ESPA funded). There was support for instituting a statewide per-head tax and dedicating a portion of the existing sales tax to a water fund as water is essential to all citizens of Idaho. General fund allocations and the use of state government surplus also appear to have significant stakeholder support.

ESPA Contribution

The dedicated funding source that received substantial attention from stakeholders was a per-acre levy with other incentives to promote conservation. A per-acre levy allows for the use of existing billing systems and monitoring through Geographic Information Systems (GIS), which could provide administrative ease. Others expressed the view that an increase in levies should be a last resort. It is also important to many stakeholders that municipal and industrial users be included in the funding stream.

6.0 Interim Measures

This section outlines interim measures to be implemented by the Board while the CAMP is being developed, as requested in Senate Concurrent Resolution 136.

6.1 Recharge

Board Recommendations: Using $350,000 allocated in November 2006, Board staff will examine feasibility of managed recharge sites and complete planning for two or three managed recharge sites. Additionally, at the January 2007 Board meeting, the Board made $150,000 available for payment of costs associated with conducting spring recharge in 2007.

The Board recommends the following guidelines for recharge opportunities in spring 2007:

- Use natural flow (not storage water) – spring snow melt and run-off period is the time most likely to have Board recharge rights in priority
- Perform recharge activities prior to the start of the irrigation season
- Measure water diverted and water delivered to recharge sites
- Use existing canal systems for transmission
- Deliver water to approved recharge sites or use canals for recharge

Actions required to implement recharge in spring 2007 include:

- Develop contracts with canal companies for transmission of Board water to recharge sites in advance of spring runoff
- Allocate Board financial resources for spring recharge costs
- Bank recharge rights to allow diversion when in priority

The average benefit of spring recharge is expected to be in the range of 45,000 acre-feet to 60,000 acre-feet (using natural flow and existing canal systems).

Risk factors that could potentially affect a spring 2007 recharge program include:

- **Weather**: Not enough snowfall in the winter means lower flows in spring, and freezing weather limits canal operations.
- **Contractual relationships:** Contracts for diversion and transportation (or "wheeling") of recharge water must be completed before water becomes available.
- **Lack of agreement over water rights:** Differing views of when the Board's recharge rights are in priority given existing hydropower permits could lead to lack of agreement on when the Board can divert for recharge purposes.
- **Measuring water:** Limits on ability to measure water delivered to recharge site may make payment to canal companies and irrigation districts for moving recharge water difficult, and limited ability to measure seepage from canals may also make it difficult to quantify recharge benefit.

- **Water Quality:** Any water quality impairments may mean intentional recharge must be halted to protect groundwater quality.

For recharge beyond the spring 2007, but prior to completion of the CAMP, the Board plans to use the $350,000 allocated in November 2006 to examine feasibility of constructed recharge and complete planning for two or three managed recharge sites. These studies will focus on sites for recharge only, and examine the potential of using both natural flow and rental pool storage water. The Board also recognizes the importance of evaluating the costs and benefits of managed recharge as compared to other management alternatives, such as groundwater to surface water conversions. Monitoring and quantifying interim recharge efforts will assist the Board in making these comparisons during the development of the CAMP.

6.2 Conservation Reserve Enhancement Program (CREP)

Board Recommendations: The Board will focus on the following activities to help ensure the CREP program meets its enrollment and water savings goals:

- Support efforts of the State CREP Enhancement Committee to improve the effectiveness of CREP, including efforts to correct stakeholder misconceptions regarding the programs requirements.
- Forward issues raised by stakeholders to staff and receive reports at future Board meeting including, opportunities to modify the program with FSA to improve CREP effectiveness.
- Support IDWR efforts to enroll land owners that have both surface and ground water rights. Landowners must demonstrate that activities provide groundwater savings.

Section 4.0, Management Alternatives, provides an overview of the CREP program and Board recommendations regarding steps to help ensure enrollment of 100,000 acres and water savings of approximately 200,000 acre feet. As discussed in that section, the program enrollment deadline of December 2007 necessitates action by all parties within the next few months to increase enrollment.

6.3 Targeted Demand Reduction

Board Recommendation: Pursue targeted reductions in water demand, including in the Thousand Springs area, through market-based mechanisms. The Board requests an additional $10 million from the Legislature to implement this recommendation in 2007. (Also covered in Interim Measures, Section 6.0)

Prior to engaging in market-based approaches to reduce demand, the Board recommends a re-examination of previous water efficiency improvement studies in the Thousand Springs Area. This re-examination may compare the cost effectiveness of providing additional infrastructure to increase supply with market-based options such as buyouts or subordination agreements to reduce demand in the Thousand Springs area.

6.4 Groundwater Model

IDWR currently facilitates the Eastern Snake Hydrologic Modeling Committee (ESHMC), a committee comprised of expert modelers representing different stakeholder groups. This Committee reviews improvements and changes to the ESPA Groundwater Model, which the Department uses for both administrative and planning purposes. The Board, through IDWR, will coordinate with this committee to ensure availability of the model for analysis of management alternatives during the CAMP development process. The modeling committee will continue to operate separately of the CAMP process, due to the multiple driving factors behind improvements to the model.

7.0 Approaches to Mitigation

Board Recommendation: Explore mitigation banking as an alternative to administrative curtailment during the CAMP process.

Most stakeholders in the ESPA are familiar with mitigation as an activity undertaken when a water right(s) call by senior appropriator(s) has been made and administrative curtailment of junior appropriator(s) is required. In this context, a mitigation plan approved by IDWR allows the junior appropriator(s) participating in the plan to avoid curtailment.

Mitigation, for the purposes of this report, is defined as a system that allows for pro-active rather than re-active actions to benefit the aquifer. The party implementing these actions receives credit that can be held, traded, and used as a whole or partial substitute for an administratively required mitigation plan. Many stakeholders requested that the Board include in the CAMP process discussion of ways in which a mitigation banking or credit system could be established to allow and encourage water users to perform voluntary individual or collective actions that benefit the aquifer.

8.0 Implementation and Next Steps

The Board recognizes that implementation of the recommendations in the Framework is key to generating support for the CAMP process and subsequent funding strategies. This section outlines how the interim measures identified earlier in the document will be implemented, and sets forth Board recommendations for the structure of the CAMP process.

8.1 Implementing Interim Measures

Two of the interim measures identified in Section 6.0 require planning to ensure timely and effective implementation – recharge activities prior to the irrigation season in 2007, and support for the CREP program to increase enrollment. The Board's staff will be primarily responsible for implementing the interim measures and reporting to the Board on progress.

8.2 Strategy and Timeline for Developing the Comprehensive Aquifer Management Plan

8.2.1 Strategic Considerations

The following strategic considerations informed the selection of a process for developing the CAMP:

- **People support what they helped create.** Meaningful public involvement in the development of the CAMP will help ensure that the end product is supported by those affected by water challenges in the ESPA – a critical element for successful implementation (and support of funding strategies). However, stakeholders will only participate if they believe meaningful progress is being made, so the CAMP development process should seek feedback on specific alternatives from the public.
- **Stakeholders want results they can see.** The Legislature asked the Board to undertake the Framework process because of the number and severity of the water challenges faced in the Eastern Snake Plain. It is important that the CAMP process move quickly and generate actionable recommendations for the Board to begin to improve the situation.
- **ESPA issues are technically complex.** The water challenges faced on the Eastern Snake Plain are complex, and affect a significant percentage of those who live and work in the region, as well as the rest of the State. Technical expertise to develop and evaluate alternatives in a defined schedule that will accommodate the CAMP development process is essential.

8.2.2 Recommended Process

The Board recommends the establishment of an ESPA Comprehensive Aquifer Management Plan Advisory Committee (CAMP Advisory Committee), with 14 members selected from among the stakeholders in the ESPA. This committee will make consensus recommendations to the Board on the elements of the CAMP, working closely with Board staff.

The Board will solicit nominations for Committee membership from stakeholders for each interest group category listed below. The Board will consider the ability of nominated

individuals to meet the responsibilities outlined in this section when selecting members of the committee. In addition, the Board will fill any perceived gaps in Committee representation by identifying additional individuals to serve, even if those individuals were not nominated by stakeholders. Because the Committee represents the primary method of stakeholder involvement in the CAMP process, all interest groups should be represented on the membership and every attempt will be made to be inclusive. The Board will seek committee members who represent the following general interests:

- Chairperson (1 representative)
- Municipalities (2 representatives – lower and upper valley)
- Business (Processors, equipment providers, dairies, bankers, etc.) (2 representatives)
- Land developers (1 representative)
- Surface water users (2 representatives – lower and upper valley)
- Groundwater users (2 representatives – lower and upper valley)
- Spring water users (1 representative)
- Hydropower (1 representative)
- Domestic well owners (1 representative)

The chairperson will be selected by the Board, and may or may not be from one of the interest groups. In addition, the Board will seek participation from members of the following State and Federal Government interests to serve the Committee in an advisory capacity:

- Bureau of Reclamation
- Idaho Department of Water Resources
- Idaho Department of Environmental Quality
- Idaho Department of Fish and Game
- Idaho Legislature and Governor's office
- US Fish and Wildlife Service

The Board recommends that specific technical issues raised by the Advisory Committee be addressed by the Eastern Snake Hydrologic Modeling Committee (ESHMC). Additional technical studies will be performed as needed, and the results reviewed by the Advisory Committee.

8.2.3 Advisory Committee Tasks

The following tasks will be performed by the Committee (roughly in chronological order):

- Establish an Operating Agreement which addresses the following issues, among others:
    - Meetings. How often will meetings be conducted? What are ground rules for participation? Where will meetings be held? How will the public participate in meetings?
    - Interaction with the Board. How will the Committee communicate with the Board? Through liaisons from the Board, and regular reports at Board meetings?

    - Working groups. What additional working groups will be established? What are the guidelines for these groups?
    - Decision making. The Board recommends a consensus process (see below for a definition of consensus).
- Develop a work plan that sets forth how and when the Committee will address the elements of this Framework and make recommendations on the contents of the CAMP, including opportunities for public involvement.
- Address management alternatives and other items in the Framework and develop detailed questions for the ESHMC or other appropriate technical experts, following the work plan.
- Make decisions on recommendations to the Board – management alternatives to pursue, funding strategies, implementation measures, etc.

Other issues the Committee could choose to address:

- Institutional structure for implementation and monitoring of the Plan
    - What organizations are currently in place in the basin and how do they function? (water districts, groundwater districts, canal companies, etc.)
    - Do the right organizations exist to implement the management alternatives, monitor progress, and collect fees (if any)?

Consensus Decision-Making

Consensus recommendations, for the purpose of this report, are defined as a process for reaching agreement that does not rely on voting. A consensus is a settlement or solution with which all members can agree. However, consensus does not necessarily mean unanimity. Some members may strongly endorse a particular solution while others may accept it as a workable agreement. A consensus is reached when all parties agree that their major interests have been taken into consideration and addressed in a satisfactory manner. In the event that a consensus is not reached on a given issue, a member has several options: 1) a member who is not in agreement with the general opinion in the group may "stand aside" and not block the consensus, 2) a member may stand aside, allow the rest of the group to reach a consensus and request that a minority report detailing the other view(s) be added to the final agreement/document or 3) a member may block consensus and request that the group announce that there was not an agreement on a particular question or issue. The complete views and perspectives of committee members will be forwarded to the Board for their decision making.

8.2.4 Advisory Committee Responsibilities

Each member of the Advisory Committee is expected to:

- Regularly attend and prepare for committee meetings;
- Clearly articulate and represent the interests of his/her group and be able to articulate a ESPA-wide perspective;
- Listen to other points of view and try to understand the interests of others;
- Openly discuss issues with people who hold diverse views and participate in a cooperative problem solving procedure to resolve differences;
- Generate and evaluate options to address the needs expressed by the Committee; and

- Keep his/her constituent group(s) informed about activities and progress of the Advisory Committee, and solicit their input about ongoing deliberations.

8.2.5 Schedule and Budget

The following schedule assumes that the Board starts the process of soliciting nominations immediately following the approval of the Framework by the Legislature, and estimates that the process of developing the CAMP will take a minimum of 16 months. The schedule includes one meeting per month of the Advisory Committee, scheduled Board meetings, and possible Public Meetings. This schedule is meant to serve as an illustration, and actual meeting dates will be set by the Advisory Committee and the Board, with proper public notification in advance of each meeting. The Board expects to present the final CAMP to the Legislature during the 2009 Legislative session.

The Board anticipates that completing the CAMP will require $850,000 in funding for facilitation and technical support. This budget was developed based on the following assumptions, and details are available upon request:

- Advisory Committee meetings will be held in various locations on the Eastern Snake Plain, in meeting facilities that are paid for by the State or available at no charge. Public meetings will be held in facilities rented by the State, and the State will assume other costs related to these meetings.
- The State will engage the services of a professional facilitation team to perform the following tasks:
    - Develop agendas for the Advisory Committee meetings
    - Facilitate Advisory Committee meetings
    - Record Committee discussions and decisions
    - Communicate with committee members between meetings
    - Act as a point of contact for inquiries from the general public regarding the CAMP process
    - Organize and facilitate public meetings and other public involvement efforts
    - Other tasks requested by the Board
- The State will provide or contract for additional technical services on an as needed basis to answer questions that are raised by the Advisory Committee or evaluate alternatives.

Figure 8.A - CAMP Process Schedule

Month	Tasks
1	• Board finalizes general interest groups, number of committee members, committee member criteria, nomination process and evaluation process • Board solicits nominations for Committee members from Stakeholders • Board meeting • Legislature reviews and approves Framework
2	• Legislature appropriates funding for CAMP Process • Board forms Advisory Committee and contracts for facilitation services
3	• Advisory Committee meeting #1 • Board meeting
4	• Advisory Committee meeting #2 • Public Meetings
5	• Advisory Committee meeting #3 • Board meeting
6	• Advisory Committee meeting #4
7	• Advisory Committee meeting #5 • Board meeting
8	• Advisory Committee meeting #6
9	• Advisory Committee meeting #7 • Public Meetings • Board meeting
10	• Advisory Committee meeting #8
11	• Advisory Committee meeting #9 • Board meeting
12	• Advisory Committee meeting #10
13	• Advisory Committee meeting #11 • Public Meetings • Board meeting
14	• Advisory Committee meeting #12
15	• Advisory Committee meeting #13 • Board meeting
16	• Final Advisory Committee meeting #14

Appendix A – Background: The Eastern Snake Plain Aquifer

Introduction

This appendix addresses following questions:

- What is an aquifer?
- What are the characteristics of the Eastern Snake Plain and the Eastern Snake Plain Aquifer?
- What benefits come from the aquifer?
- What is the role of the Eastern Snake Plain in Idaho's population growth and economy?
- Why manage the aquifer?

Aquifer Basics

An aquifer is an underground layer or body of rock, sand and soil that contains water. The rocks or soils in an aquifer are permeable, and permit the water to move both vertically and horizontally through the aquifer at varying rates. It is the permeability of soils in an aquifer that make it possible to bring water to the surface through a well. Aquifers are bounded by impermeable layers of rock or clay through which water cannot move – these boundary layers keep water in the aquifer.

Aquifers can be large or small. The Ogallala aquifer in the central US lies underneath portions of eight states. Some aquifers lie underneath only a few acres. In some aquifers, the layers of rock and soil are consistent across the aquifer, while in others these layers vary greatly. Shallow aquifers are located close to the ground, while deep aquifers can be located up to thousands of feet below the earth's surface. Aquifers also vary in the way they are connected to surface water bodies. Some are not connected at all, while some draw water from or discharge water to rivers, lakes and streams – even the ocean.

The Eastern Snake Plain and the ESPA

The Eastern Snake Plain covers 29,000 square miles in southeastern Idaho – approximately 35% of the State's land area, and all or part of 20 counties. The Snake River itself originates near the continental divide in Yellowstone National Park. It enters Idaho at Palisades Reservoir, and joins with the Henry's Fork River near Rigby.

The ESPA – or the Eastern Snake Plain Aquifer (sometimes Eastern Snake River Plain Aquifer) – underlies 10,000 square miles of the Eastern Snake Plain.

Some quick facts about the aquifer:

- Underlies 13% of the state
- Made of layered basalt, in some places thousands of feet thick
- Major direction of groundwater flow is northeast to southwest

- Discharges into the Eastern Snake River through springs, some emerging out of canyon walls
- In some places, water enters the aquifer directly from the river
- Precipitation or surface application of water on land over the aquifer can filter down into the groundwater and "recharge" the aquifer

Benefits from the Aquifer

Rivers run full during times of heavy precipitation, or when snow pack melts in the spring and summer. Aquifers don't respond to weather conditions in the same manner. Some act like reservoirs along a river system, storing water for a period of time and then releasing it at a later date. In a surface water system, a storage water reservoir helps water users save water from precipitation or snow melt for use at a later time. Aquifers can function in much the same way. Generally, surface water is only available for use along the river or stream, or from canals that have been constructed to bring water closer to the people that want to use it. Digging a well into an aquifer and installing a pump to bring water to the surface can make water available in more places. In the case of the ESPA, the aquifer lies beneath a much greater land area than can be served effectively by canals. Additionally, water stored in the aquifer escapes evaporation loss and has a constant temperature that is unaffected by weather conditions.

Some benefits from use of groundwater include:

- Economic – Water is an input in the production of many goods (farm products) or delivery of a service (municipal water supply).
- Social – By making it possible to access to water across the plain, groundwater enables people to live in communities away from the river.
- Lifestyle – Spring flows and enhanced river flows that come from the aquifer provide scenic beauty and recreational opportunities.
- Environmental – Spring flows into the river provide water needed for fish and other wildlife.

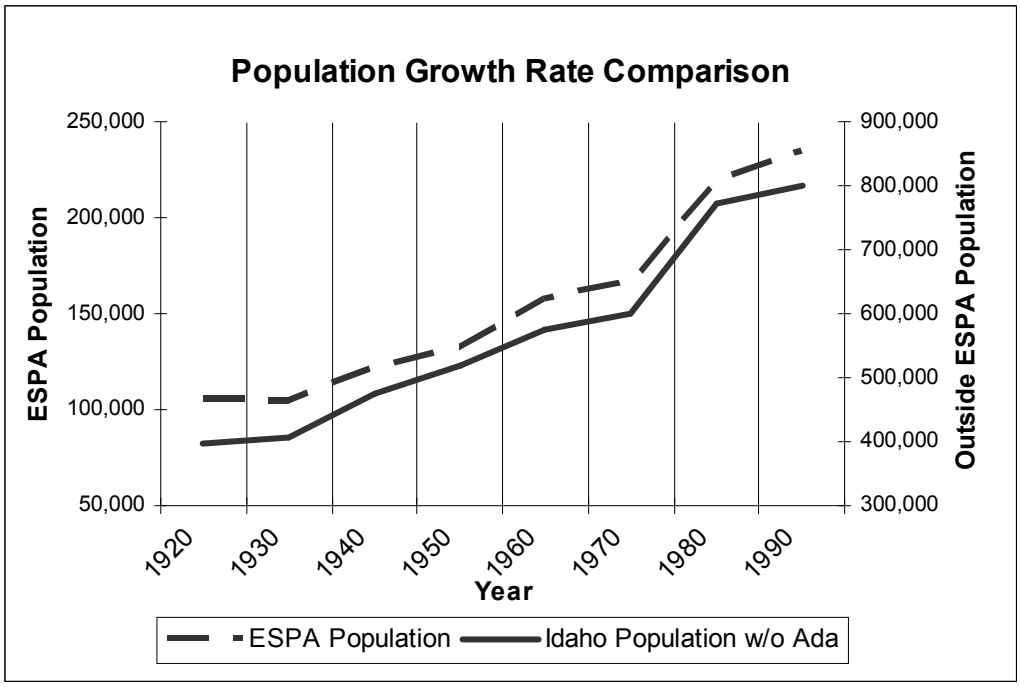
Who benefits from the Eastern Snake Plain Aquifer?

- **Residents of local cities** receive clean and affordable drinking water from municipal systems.
- **Rural homeowners** over the ESPA have access to clean and affordable drinking water from domestic wells.
- **Farmers on the Eastern Snake Plain** use groundwater for crop irrigation, and aquifer discharge to the river through springs for crop irrigation with surface water.
- **Aquaculture** facilities grow trout and other species with spring water that has the correct temperature and quality to allow fish to thrive.
- **Local businesses** use water to produce goods, or supply farmers and others that need equipment and use water to make their living.
- **Local and regional hydropower producers** are able to produce more power with their hydroelectric facilities when river flows are enhanced by aquifer discharge. When power production is affordable, rate payers benefit as well.

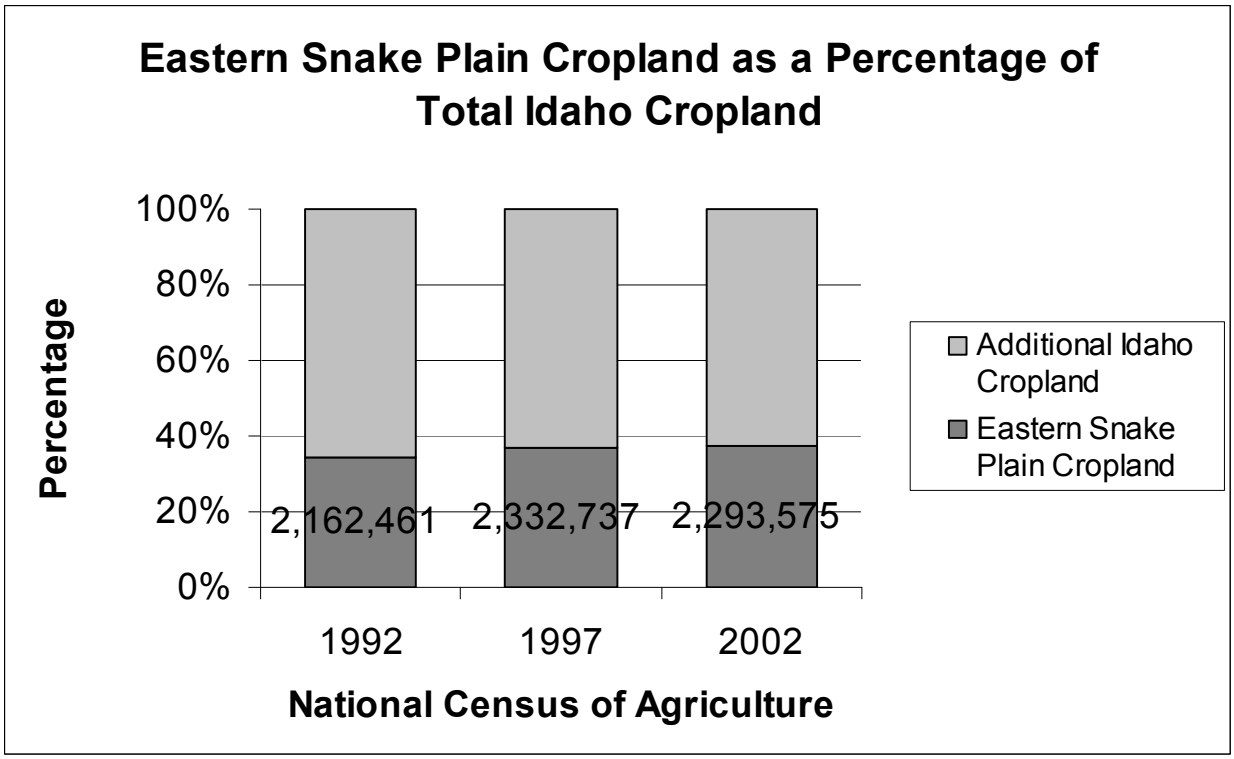
- **Local and regional tourism-dependent businesses** sell goods and services to vacationers, hunters, fishermen, and other outdoor enthusiasts that come to the Eastern Snake Plain.
- **Local and regional recreational enthusiasts** have access to a beautiful river and good wildlife habitat near their homes.
- **Municipalities and businesses with discharge permits** are able to treat and discharge wastewater into the Snake River and its tributaries.

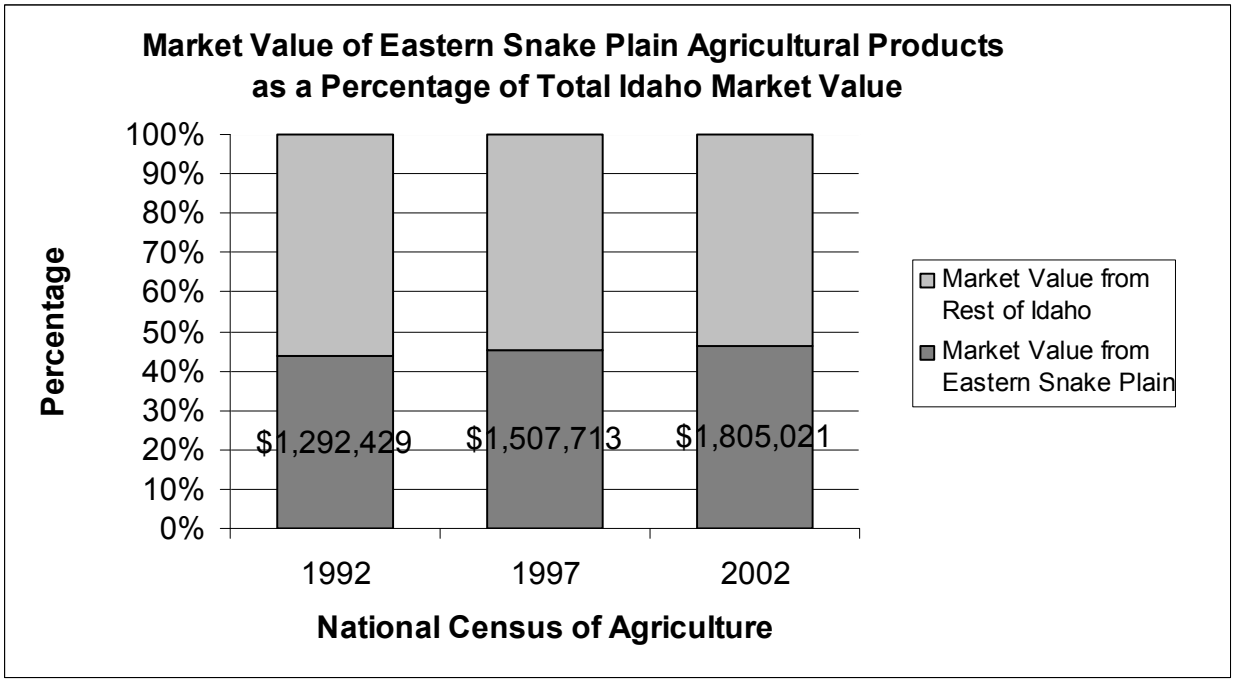
Role of the Eastern Snake Plain in Idaho's Population and Economy

The population of the Eastern Snake Plain is growing. The graph below uses historical population figures to show that the population of the ESPA has grown at the same rate as the rest of Idaho, and has even grown faster in recent years (Ada County was excluded from the statewide numbers). A growing population not only means more domestic water users, but more local businesses, some of which may rely on water for their production.



Agriculture is the most water-intensive industry on the Eastern Snake Plain. How important is Eastern Snake agriculture to the state of Idaho? The tables on the following page show cropland acreage and market value of agricultural products in the Eastern Snake Plain as a percentage of total values for the State. The Eastern Snake Plain has less than 40% of total cropland acreage in the state, but brings in over 40% of the total market value from agricultural products.


Eastern Snake Plain Cropland as a Percentage of Total Idaho Cropland
Percentage
100%
80%
60%
40%
20%
0%
2,162,461
2,332,737
2,293,575
1992
1997
2002
National Census of Agriculture
Additional Idaho Cropland
Eastern Snake Plain Cropland


Market Value of Eastern Snake Plain Agricultural Products as a Percentage of Total Idaho Market Value
Percentage
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
$1,292,429
$1,507,713
$1,805,021
1992
1997
2002
National Census of Agriculture
Market Value from Rest of Idaho
Market Value from Eastern Snake Plain

Why Manage the Aquifer?

The Eastern Snake River and the ESPA are interconnected. Water users hold different views on how much impact this connection has on users of groundwater and users of surface water. The State Water Plan establishes that if surface and ground water are hydrologically connected they are to be managed as a single resource. This means that the IDWR has considered these resources as interconnected when making administrative decisions on water rights. IDWR has used the conjunctive management rules and a computer model of the aquifer to help understand the impacts of water use in different parts of the aquifer on each other.

Management of natural resources such as water can be undertaken for many different reasons. Sometimes the goal of management is to cope with change. In the case of the Eastern Snake Plain, many changes have occurred over the past decades that may have influenced the ability of the system to meet legal and statutory objectives, including the fulfillment of senior water rights. These changes include an increased number of groundwater wells, changes in irrigation technology, and variations in yearly precipitation (drought). Management is one approach to increasing the ability of the system to meet water needs despite these changes.

What will happen if there is no management of the ESPA, assuming current laws and policies continue? If Idaho receives enough precipitation each year to satisfy the demands of all water rights holders along the river, and enough water goes back into the aquifer to satisfy the demands of all groundwater rights holders, then there will be no need for administration, and no need to manage the system to cope with changes. Data tell us that precipitation varies, and the chance of receiving enough each year for everyone is small. The State could choose to use administration to allocate the water that is available to the most senior users.

In 2006 the Idaho legislature passed Senate Concurrent Resolution 136 requesting that the Idaho Water Resources Board (IWRB) develop a framework for management of the aquifer. The Framework outlines numerous ways to manage the aquifer that account for the changes outlined above. Substantial challenges – including legal, technical and political – are involved when attempting to manage as large and complex a system as the ESPA. These issues will be addressed during development of the Comprehensive Aquifer Management Plan, a process that will have significant involvement from water users and other members of the public.

Appendix B – Framework Process Timeline

Date	Activities
August 2006	• Kick-off meeting with Board staff • Initial interviews with stakeholders
September 2006	• Continued initial interviews with stakeholders • Met with Board (September 21 and 22 in Pocatello) to present initial themes
October 2006	• Continued stakeholder conversations • Hosted three public meetings: October 11, Pocatello October 18, Twin Falls October 19, Idaho Falls • Met with Board via conference call
November 2006	• Continued stakeholder conversations • Met with Board (November 13 and 14 in Boise) to present a summary of public comments and options for moving forward
December 2006	• Continued stakeholder conversations • Hosted two Management Alternatives Working Group meetings: December 4, Twin Falls December 13 and 14, Burley • Met with Board via conference call
January 2007	• Continued stakeholder conversations • Hosted one Management Alternatives Working Group meeting: January 10, Idaho Falls • Hosted three public meetings: January 16, Idaho Falls January 17, Pocatello January 18, Twin Falls • Met with Board (January 22 and 23 in Boise) to present draft Framework and summary of public comments
February 2007	• Revised Framework per comments from Board and stakeholders

Appendix C – Summaries of Comments Received at Public Meetings

October 2006 Public Meetings (October 11, 18 and 19, 2006)

Executive Summary Prepared by CDR Associates, October 31, 2006

Below is a summary of public input received at the Eastern Snake River Plain Aquifer (ESPA) Framework public meetings held on October 11, 18 and 19, 2006. Approximately 225 members of the public attended the public meetings held in Pocatello, Twin Falls, and Idaho Falls. The goals of the meetings were to provide information and solicit public comment regarding the development of a Framework for a Comprehensive Aquifer Management Plan for the ESPA. For a complete list of comments, both written and verbally expressed during discussion at each meeting, and a copy of the PowerPoint presentation used by the facilitators, please visit www.espaplan.idaho.gov.

Summary of Public Comments

The facilitation team delivered a PowerPoint presentation at each of the three public meetings. The goals of the presentation were to 1) provide an overview of the ESPA, 2) introduce the ESPA Framework Process, 3) discuss roles, and 4) receive public input. Following the presentation, questions were posed to participants. The questions were:

- What issues/concerns do you have related to the process of developing a Framework?
- What are your thoughts on possible goals for aquifer management?
- What comments do you have on the management alternatives
- How should the ESPA management alternatives be funded? Principles?
- Other Comments?

A summary of public input, written and verbal, received at the combined meetings follows.

1. What issues/concerns do you have related to the process of developing a Framework?

Numerous members of the public expressed support for the development of a management plan for the ESPA. Some members expressed interest in increased outreach before the next round of public meetings. Ensuring that all water users' perspectives are incorporated into the Framework was an expressed interest. The facilitation team received suggestions for additional individuals and groups to involve in the process.

2. What are your thoughts on possible goals for aquifer management?

The facilitation team solicited input regarding aquifer management goals. Numerous perspectives regarding aquifer goals were expressed including the need for:

- Developing a system where all water users are treated equally, especially in times of shortage;
- Reducing withdrawals from the aquifer to achieve aquifer stabilization (participants noted that an appropriate aquifer level must be identified);
- Keeping senior water rights holders 'whole' through implementation of the prior appropriation system;
- Protecting the aquifer to ensure the economic viability of the region, especially in the agriculture and aquaculture sectors;
- Providing a long-term sustainable supply of water for all water users.

Other members suggested that management of the aquifer should be fair, simple, realistic and consistent with existing state statues. Aquifer management should not create unnecessary administrative or legal procedures; rather it should provide clarity and predictability in terms of water use.

3. What comments do you have on the management alternatives?

Numerous management alternatives were discussed at the public meetings. Attendees frequently mentioned intentional recharge of the aquifer. Recharge, especially when implemented by running 'excess water' through existing canals, was supported by many participants. The obstacles to recharge including legal, political and geographic, were raised at the meetings. A number of attendees mentioned House Bill 800 to illustrate the political obstacles to implementing recharge. Some offered the idea that a credit and trading system could be developed around recharge, with those involved receiving credit for participating in or funding recharge projects, with those credits made available to offset mitigation requirements. Participants suggested that the facilitation team work to identify and overcome the obstacles and identify ways to implement intentional recharge for the 2007 water year.

Some members of the public strongly advocated for involuntary curtailment using the prior-appropriation system, i.e. curtailing junior-rights holders during times of shortages. Many who advocated for involuntary curtailment discussed current and personal impacts to their water supply. Other participants noted that the strict use of curtailment would not result in water immediately returning to impacted water users and advocated for other options to meet water needs. Voluntary reduction of groundwater pumping, including through the Conservation Reserve Enhancement Program (CREP), water buy-outs and groundwater/surface water conversions, was discussed and supported by many participants, especially when coupled with a 'willing buyer willing seller' approach to acquisition.

Increasing storage, through dam construction outside the ESPA, was an alternative suggested to address water supply needs. Numerous members of the public advocated managing the aquifer like a reservoir, which includes using groundwater to offset shortages in overall water supply.

4. How should the ESPA management alternatives be funded? Principles?

A variety of perspectives were presented regarding how to fund the ESPA aquifer management alternatives. Numerous participants felt that the state is primarily responsible for the ESPA aquifer management, since the state issued water rights that are viewed as contributing to current water shortage issues. Others advocated for a state-wide water sales tax increase of a quarter cent to address ESPA and other water needs across the state. Some participants objected to the concept of a water use fee or per acre levy by noting that the problem was create by the state, while others were in favor of water users helping to offset costs by paying a fee based on the volume of water used.

Funding principles suggested included:

- Financial contributions to ESPA aquifer management should be based on the priority of water right;
- Those who have been damaged should contribute less than those who have not been impacted;
- Those who benefit most from the alternatives should pay a proportional share for the management;
- An equal share of the costs should be apportioned to users based on the volume of water used;
- New users, including domestic wells and new groundwater pumpers, should contribute more for the management of the aquifer.

It was noted by participants that the funding mechanism should ensure implementation of goals and that adaptive management concepts be established to monitor performance. The Idaho Department of Water Resources (IDWR) was identified by some as the most appropriate entity to ensure implementation, and participants suggested that an increase in Department resources may be required to accomplish this task.

Members of the public expressed an interest in the facilitation team outlining the costs and benefits of each set of alternatives (minimum, modest, aggressive) to understand the financial implications. Others cautioned the facilitation team on identifying funding mechanisms before the goals and alternatives have been established.

5. Other Comments?

Numerous members of the public expressed the view that the current ESPA groundwater model in use by IDWR is inadequate for the task of water-rights administration and aquifer management, and suggested refinements to the existing model. Others suggested a focus on mitigation strategies that can be implemented during times of shortage. Increased monitoring of domestic wells was recommended to keep track of who is using water.

January 2007 Public Meetings (January 16, 17, and 18, 2007)

Executive Summary Prepared by CDR Associates, January 22, 2007

The following public input was received during the three ESPA public meetings held January 16, 17 and 18, 2007 in Idaho Falls, Pocatello, and Twin Falls. Public comments have been organized into categories roughly based on the public meeting presentation. To review the public meeting presentation and other ESPA Framework documents go to: www.espaplan.idaho.gov.

Goal

- Adaptive management – need to be able to measure progress against goals, and determine the effectiveness of each management alternative.
- How do you define balance? Is it determined every year, or over a five or ten year period? This goal seems to say that if we don't have water coming into the system, then some users are going to get turned off. We should use the aquifer as a vehicle to get us through drought years. Maximum beneficial use of the resource should be part of the goal, including full economic development of the state as included in the groundwater law.
- Concerned that balance would be based on the water people are receiving now, which in some cases is less than their decreed water right. Balance should be based on decreed water right, and rights holders should be compensated for the loss of this water while they wait for the situation to improve.
- The inclusion of "maintain the health of the aquifer" denudes the already established goal of full economic development.
- What is meant by "social" in the goal? Would "societal" more accurately capture the intent? "Social benefit" instead of "social health", if the goal is to preserve communities in the ESPA?
- If the plan we're creating is a "management" plan, then the word "manage" should be a key part of the goal statement.
- The Framework should take into account that until spring water rights were declared surface water, spring users took measures to increase flow from springs, including tunneling. These actions increased the water coming out above what may have historically been available. How do we treat these "modified" systems?
- There must be numerical targets in the goal in order to move forward. Can't really talk about how much money or which management alternatives before targets are established.
- Need to include measurements in the Framework – where and how will the aquifer be measured to see if things are improving?
- Should have a schedule that specifies when certain measures will be implemented, and when progress toward the goal will be assessed.

Objectives

- Concerned that objective C (Decrease Overall Demand for water within the Eastern Snake Plain) is incompatible with continued economic development and growth in eastern Idaho. If there is water going over Milner, then there is still water to develop.
- Objective C forces us to come to terms with the reality that there isn't any more water to develop, and growth is dependent on transfers between uses.
- Regarding Objective C: we won't ever be able to decrease demand, so this objective is unrealistic and should be removed.
- Objective C doesn't address a "management" issue and should be removed.
- The objectives should include conservation of water on a per-capita basis.

Management Alternatives

- Management alternatives should include conservation, but conservation can be a double-edged sword. Must ensure that state won't penalize conservation by reducing someone's water right.
- Should run a parallel program to CREP that would pay farmers to grow low-water use crops.
- Administrative curtailment should be treated as a management alternative. Several states across the west routinely curtail groundwater users – look at the Colorado example.
- Additional storage is critical – should hold water as high up in the basin as possible. The Plan should look at off-site reservoirs into which water can be diverted when flow is high, and that could contribute water back to the system when flow is low.
- Can this program be coordinated with land use decisions in ESPA counties? Subdivisions are developing and including things like vanity ponds in their plans. These ponds are lined and don't contribute any water to the aquifer.
- Recharge:
    - "Wastewater" classification: Right now, recharge water is considered wastewater under DEQ standards, and as such must meet the same standards as discharged wastewater before it is used. This would require treatment of recharge water in some cases (additional cost). Could DEQ set up a separate category for recharge water, and not require it to meet wastewater requirements?
        - Sampling recharge water is possible, but monitoring wells add significant cost.
        - In the past, recharge helped improve water quality in the aquifer by diluting things we didn't want in there. Now that we're not doing that much recharge, pollution is a problem. If DEQ recognized recharge as a beneficial use to protect water quality, maybe they'd be able to change some of their requirements.
        - There are some water quality concerns on the horizon in the eastern snake – nitrates, e-coli, other contaminants – that we need to watch out for, especially on the south side of the river.
        - Need to address the issue of liability so we make sure we don't do something that has to be fixed later.

- If recharge with existing water rights and facilities could put 45 kaf to 60 kaf into the aquifer, how much could a larger-scale recharge program accomplish?
- Will stored water ever be part of the recharge program?
- Need to do everything we can to maximize recharge in facilities that don't trigger DEQ's monitoring requirements.
- Lots of states have recharge programs based on injection wells. Idaho should consider this option, and learn from experiences in other states.
- Could the state require subdivision developers to dig a ditch within the subdivision, and keep the surface water rights associated with that land running into the ditch, to create recharge?
- Site-specific augmentation – this is conflict resolution, and possibly administration, but not a tool for management.

Funding Mechanisms

- Will the resources that groups have already put into managing the aquifer be credited against what they are asked to pay for the implementation of the CAMP? (example: contributions to CREP program by groundwater users)
- Surface water users should get credit for the amount of incidental recharge created by canal operations.
- Some canal companies in the upper part of the aquifer have huge seepage out of their canal systems – lots of incidental recharge. The Plan needs to provide incentives for continuing these operations, and not lining canals. Shouldn't be charging people who are already contributing significant recharge for additional aquifer management.
- Could put a surcharge on every electrical meter of $3 to raise money for aquifer management.
- Senior water users should not pay for their own mitigation.
- Asking for a portion of sales tax revenue will only work if those resources are matched by local contributions.
- Per-acre levy is the most equitable way of distributing costs. This is something the interim committee that has already been put together to find resources for monitoring and improvements to the model should also consider.
- A per-acre charge will be hard to collect – you'll spend half of what you bring in trying to collect.
- Using a per-acre basis for funding contributions takes away any competitive advantage groundwater users have, whereas contributions based on water used would be easier for groundwater users to absorb.
- Suggesting an addition to the sales tax won't fly with voters – should aim to dedicate part of the existing sales tax to water issues around the state, or just for aquifer management.
- Should tax bottled water to raise money for aquifer management.
- Groundwater users don't object to providing part of the funding to manage the aquifer, but we can't provide all of the money that will be needed without going under. Funding should include everyone who uses the aquifer, including domestics. The state needs to be part of the funding solution.
- If ESPA water users can go to the Legislature with a united front, they'll be much more likely to make a state contribution to funding aquifer management.

- Any funding strategy should be broad-based – our six-county agricultural project is over a billion and a half dollars a year, or 40% of the total production in Idaho. This regional economy is hugely important to the state.
- Additional fees and taxes should be a last resort, because the state already has a significant surplus.

Appendix D – Comparison of Management Alternatives

Management Alternative	Description	Board Recommendation	Risk Factors	Anticipated Benefit Range	Anticipated Cost Range
Managed Recharge (Also Interim Measure in 2007)	Intentional placement of water on designated sites for the purpose of causing that water to infiltrate into the underground aquifer	Pursue a managed recharge program, using the Board's pilot recharge projects and approved studies of three recharge sites to refine cost estimates and potential benefits In 2007: When conditions permit, conduct spring recharge using Board water rights and $150,000 in Board funds.	• Availability of water • Weather • Surface water quality and potential liability • Administrative responsiveness to changing conditions	45 to 60 kaf per year using Snake River and Big Wood River recharge rights; more possible with storage water	$150,000 for 2007 only; unknown for future efforts
Incidental Recharge	Occurs when the normal operation of a water distribution system or on-farm water use practices results in infiltration that contributes to water levels in the aquifer	Quantify and develop an understanding of the role of incidental recharge in the ESPA; investigate and develop a proposal for the use of incentives or other strategies to encourage 'no net loss' of incidental recharge	• Difficult to document and quantify • Goes against "conservation" approach • May require incentives	Unknown	Unknown
Site-Specific Supply Augmentation	Augmenting supply for senior users to compensate for decreased flow	Explore site-specific supply augmentation opportunities during the CAMP development process. The Board anticipates that these actions will provide only temporary relief, and apply to a limited number of cases.	• Limited opportunities exist to substitute compatible supplies	Unknown	Unknown
Additional Surface Water Storage	Constructing new surface water reservoirs on Snake, tributaries, or outside basins	Explore additional surface water storage opportunities, recognizing financial and environmental concerns.	• Environmental analysis of alternatives (NEPA process)	Unknown	Unknown
Increase CREP Enrollment: Interim Measure	Federal and state payments to groundwater irrigators for 15-year retirement of acreage	Support the State CREP Enhancement Committee, including efforts to correct misconceptions regarding program requirements; ask staff to review other issues raised by stakeholders, and support IDWR efforts to enroll land with both surface and ground water rights.	• Enrollment ends December 2007 • Participation is currently low	Up to 200,000 ac-ft per year	Resources already committed by State and Federal Government
Conversion of Groundwater to Surface Water	Full or part-time conversion of acreage irrigated with groundwater to surface water use	Perform feasibility studies to further identify opportunities for groundwater to surface water conversions	• Limited capacity of canal systems • Would require purchase of water	Unknown	Unknown
Targeted Demand Reduction: Interim Measure	Using market-based mechanisms to reduce need to seek administrative remedies	Pursue targeted reductions in water demand through market-based approaches. The Board requests an additional $10 million from the Legislature to implement this recommendation in 2007.	• Deals with administrative but not physical system	Unknown	$10 million