FINAL
U.S. Bureau of Reclamation, Mid-Pacific Region
Criteria for Evaluating Water Management Plans
September 1996

These "Criteria for Evaluating Water Management Plans" (Criteria) were developed by the US Bureau of Reclamation (Reclamation) in response to the Central Valley Improvement Act of 1992 (CVPIA) and in accordance with the Reclamation Reform Act of 1982 (RRA).

All agencies (Districts) that contract with Reclamation for Municipal & Industrial (M&I) water in excess of 2,000 acre feet and/or for Agricultural (irrigation) water to serve over 2,000 irrigable acres will be evaluated based on the required information detailed in the steps listed below. The steps are:

1. Describe the District
2. Inventory Water Resources Available to the District
3. Best Management Practices (BMPs) for Agricultural Contractors
   a. Non-exemptible BMPs
   b. Exemptible BMPs
4. Best Management Practices for Urban Contractors
   a. Non-exemptible BMPs
   b. Exemptible BMPs
5. Exemption Process

ıe data called for in the Criteria are not available, the District shall include in its plan how the District will r the data and have it available for the next plan update.

BACKGROUND AND GENERAL INFORMATION

Section 210 of the RRA requires districts with certain types of Bureau of Reclamation contracts to prepare and submit Water Management Plans (Plans) with definite goals, appropriate water conservation measures, and timetables. "Guidelines" for preparing these Plans were prepared and are updated by Reclamation, Mid-Pacific Region every 5 years. Districts were asked to submit updated Plans every 5 years to reflect the specifics in the revised Guidelines.

Section 3405 (e) of the CVPIA requires that the Secretary of the Interior establish criteria to evaluate Plans by April 30, 1993, and that these Criteria be reviewed and revised, if necessary, at least every 3 years.

This law specifies that the Criteria identify best management practices (BMPs) including, but not limited to, efficient water management practices being developed according to California State law or reasonable alternatives. In addition, the Criteria are to grant substantial deference to the recommendations included in *A Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin Valley (September 1990).*

Reclamation has been unable to wait for a conclusion to the California Agricultural/Public Interest Group Task Force consensus discussions (instituted by Assembly Bill 3616) before issuing and revising these Criteria but has incorporated the majority of the current AB 3616 language. Consensus BMPs for urban water districts (resulting from an Urban/Public Interest Group Task Force) were incorporated into these Criteria in 1993. When the Criteria are updated, Reclamation will consider modifications to reflect future consensus reached between agricultural, urban and environmental and public interest groups.

PROCESS TO DEVELOP THE CRITERIA

The purpose of these Criteria is to promote the highest level of water use efficiency reasonable achievable by project contractors using best available cost-effective technology and best management practices.

The revision of the 1993 Criteria began on September 12, 1995, when Reclamation sent the Criteria to the interested public for review and comment. On the basis of oral and written comments; Reclamation's experience with administering the Criteria, and comments from the CVPIA Public Forum Water Conservation Workteam, Reclamation proposed changes to the April 1993 Criteria.

Draft Revised Criteria were distributed to more than one thousand interested parties in March 1996.
Reclamation received written com
Reclamation received oral comments at three public workshops, with forty-one participants. Reclamation met with members of the Central Valley Project Public Forum Conservation Workteam (Workteam) to discuss the draft revised Criteria.

Major concerns expressed in written and oral comments, and by the Workteam included: consistency with the AB 3616 draft MOU, the degree of measurement required by the Criteria, the nature of pricing required by the Criteria, and the possibility of regional Criteria. Other significant concerns included: conditioning discretionary benefits on Plan development and implementation, accommodation of the *Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin Valley (September 1990)*, and the inclusion of groundwater management plans. The current resolution of these concerns is reflected in this second draft revised Criteria. If you would like a complete copy of the comments and Reclamation responses, please contact the Water Conservation Program Manager at (916) 979 - 2388 (TDD (916) 979-2310).

Reclamation is releasing these revised Criteria while it works to develop a proposal for regional Criteria, first for the Sacramento Valley region and later for other regions if it appears warranted. Reclamation will work with concerned districts, public interest groups, stakeholders and the public to determine what regional Criteria might be appropriate.

Annual Updates for districts that developed Plans under the 1993 Criteria will conform to the revised Criteria. Implementation of BMPs that were eliminated or moved to Attachment A in the revised Criteria will no longer be formally reviewed by Reclamation.

As used in these Criteria, "water conservation" means:

Improved water management through the implementation of best management practices.

Although the term "Best Management Practice" has been used in various statutes and regulations, the

definitions and interpretations of that term in those statutes and regulations do not apply to these Criteria. For the purposes of these Criteria, "Best Management Practice" means:

policy, program, practice, rule, regulation and/or ordinance, or the use of devices, equipment or facilities which meets either of the following items:

1. An established and generally accepted practice among water districts that results in more efficient use, conservation or management of water;
2. A practice for which sufficient data are available from existing water management projects to indicate that significant efficiency improvements or management related benefits can be achieved; that the practice is technically and economically reasonable and not socially or environmentally unacceptable; and that the practice is not otherwise unreasonable for most water districts to carry out.

Reclamation recognizes that these Criteria call for plans that are more detailed than those required before passage of the CVPIA. To assist districts in developing adequate water conservation plans, Reclamation's Mid-Pacific Region area offices have Water Conservation technical staff that are aware of and familiar with local and area specific issues. Water Conservation staff are current with technical advancements and familiar with programs implemented within all regions of the State. Since the Criteria were developed in 1993, over half of CVP contractors above the threshold of 2,000 acre feet for M & I contractors or 2,000 irrigable acres for agricultural contractors have developed and implemented plans that meet this Criteria.

Reclamation developed and distributed a Guidebook for Developing Water Management Plans detailing the type of information required by the 1993 Criteria. This Guidebook will be updated to conform to the revised Criteria.

BENEFITS OF WATER MANAGEMENT PLANNING

Planning for water management programs offers the opportunity for districts to coordinate efforts and think about the best ways to implement programs before making any capital expenditures. Comprehensive planning allows all affected parties - end users, District Board members and staff - to be on the same path to accomplish the same goals. Some districts have chosen to use these plans as a business plan, as a way to identify long range activities and develop a stable program base.

Water Transfers

Water transfers may have, in some instances, a substantial part to play in good water management. Some Districts have found that they can market water as a way to provide funding for water management programs.

Water transfers are legally recognized as a beneficial use of water. The CVPIA authorizes the transfer of water outside of the CVP service area, subject to certain conditions, creating opportunities not previously available to CVP contractors. In February 1993 Reclamation issued "Guidelines for Implementation of Water Transfers," available upon request, that outline the procedures for water transfers within and outside of the CVP service area.

Flexibility

These Criteria recognize the differences between districts and have been written to be flexible enough to allow each district to develop and implement the types of programs that will best accomplish improved water management within their boundaries. In some cases, districts may choose to pool resources and implement joi programs. These Criteria not only allow, but encourage, joint efforts toward program implementation.

Plan Implementation

Water management in general, and water management planning in particular, is an on-going process that does not stop with the preparation of a comprehensive Plan. The purpose of preparing a Plan is for Districts to implement the programs developed during the planning process. Implementation of programs identified in the Plan is critical to the success of water management within a District. These Criteria focus not only on what constitutes an adequate Plan, but also on the implementation of the programs described in that Plan. Districts shall report on Plan implementation annually.

Consequences of Non-Compliance

Reclamation policy is to condition the granting of contract renewals on the development and good-faith implementation of an adequate Water Management Plan. Because development and implementation of a Water Management Plan is an important tool for the evaluation of proposals for water transfers, Reclamation encourages that Plans be in place for Districts wishing to transfer water to other entities.

Review Process

Districts that submit three copies of a complete plan or complete revisions will receive, within 90 days, notification of Reclamation acceptance or request for modification.

Step 1. Describe the District

Intent:

To describe general physical information about the District in order to form a basis for evaluating improvements by, and within, the District, as well as provide the reader with information about physical aspects of the District that may effect the potential for improved water management.

Evaluation:

Reclamation recognizes that in certain circumstances, specific information may not be available. In these circumstances, the step will be considered "adequately addressed" if the plan describes how the information will be obtained for the next plan update.

Detail Expected in an Adequate Plan:

Water Management Plans shall describe the District history, location and facilities, size, terrain and soils, environment, climate, operating rules and regulations, customer water delivery measurements, water rate schedules and billing, and water shortage allocation policies. For data not available during the preparation of this plan, the District shall describe how the information will be obtained for the next Plan update.

A. **History:** Give an historical overview of the District. Provide a timeline which includes the formation of the District, original size, water supplies, contract information with Reclamation and others, and changes in land use. For agricultural contractors, describe changes in irrigated acreages, cropping patterns, and evolving irrigation methods.

B. **Location and Facilities:** Describe the water conveyance and delivery system within the District service area (e.g., unlined canals, lined canals, pipelines, etc.), storage facilities (e.g., reservoirs, regulating reservoirs, etc.). Agricultural Districts should describe spill recovery systems, and whether the delivery system is on-demand (no lead time or scheduling necessary), scheduled (i.e., order water 24 hours in advance), rotation (farmer receives water every 10 days), or other. Describe any restrictions on the District's water source(s) and proposed changes that will be implemented in the next five years.

C. **Topography and Soils:** Describe the topography of the District (e.g., hilly, flat, sloping to a water course, etc.). Indicate the impact of topography on water operations and management within the District. Districts with agricultural contracts over 2,000 irrigable acres, describe major soil classifications and corresponding acreages within the District's boundaries. Describe any soil limitations that affect the use of water (e.g., salinity or high water table, extremely sandy soils, low infiltration rates, etc.).

D. **Climate:** Describe the general climate of the District. Include average precipitation, maximum and minimum temperatures, average wind velocity and direction and frost free days. If, within the District, there are known areas with significantly different microclimates, describe how these affect water management decisions and operations.

E. **Natural and Cultural Resources:** Describe any known natural resources (e.g., wetlands, rivers, streams, lakes, fisheries, threatened plant and animal communities, spawning grounds, flyways, etc.) within the District boundaries. Indicate any management of these resources in the past or present by the District. Describe any known recreational and/or cultural resources within the District.

F. Operating Rules and Regulations: Describe or attach a copy of the District's operating rules and regulations. Agricultural contractors should include information on water allocation policies, lead time necessary for water orders and water shut-off, any policies regarding return flows and drainage leaving the District, and policies related to water transfers into or out of the District (farmer and District).

G. Water Measurement, Pricing and Billing: List the total number of connections/ turn-outs, the number currently measured and the percentage of customer water deliveries measured. List the types and numbers of measurement devices (e.g., meters, calibrated gates, weirs, etc.), level of accuracy, frequency of calibration, and maintenance and reading schedule.

Describe the basis for water charges for agricultural, municipal and industrial uses. A copy of the District's written operating rules and regulations will suffice if they include: basis for water charges for agriculture (e.g., by quantity, by acre, by crop, by land assessment, by other charges, etc.) and/or for municipal and industrial (e.g., by customer class, by quantity, flat rate, etc.).

If water use is billed by quantity describe the rate structure (e.g., declining, uniform or increasing block rate, etc.). Include the billing frequency (e.g., monthly, bimonthly, annually, etc.), bill format and a description of the record management system.

H. Water Shortage Allocation Policies: Attach a copy of the District's agricultural and/or urban water shortage policies.

Agricultural Districts shall describe how reduced water supplies, including hardship water, are allocated. Describe District policies that address wasteful use of agricultural water and describe enforcement methods.

Step 2. Inventory Water Resources

Intent:

To describe the quantity and quality of water resources (sources, uses, and discharges) available to the District in order to form a basis for evaluating improvements by and within the District, and to provide the reader with an understanding of water available to the District, water used within the District, and water discharged from the District.

Evaluation:

Reclamation recognizes that in certain circumstances, specific information may not be available. For these circumstances, the step will be considered "adequately addressed" if the plan describes how the information will be obtained for the next plan update.

Detail Expected in an Adequate Plan:

This step shall include a description of the District's surface water supply, ground water supply, other water supplies, source water quality monitoring programs, water uses within the District, agricultural drainage from the District, urban waste water disposal, and a water inventory. Provide this information for 1996. For data not available during the preparation of this plan, the District shall describe how the information will be obtained for the next plan update.

A. Surface Water Supply: Describe the acre-foot amounts delivered to the District by each of the District's surface sources for the specified years. Describe any water quality limitations or management concerns associated with the identified water sources. Provide the amount of water received under each right d/or contract for the last 10 years.

B. Ground Water Supply: Describe the general characteristics of the ground water basin(s) that underlie the District. Provide a map locating District operated water wells, and managed ground water recharge areas. If there is conjunctive use of surface and ground water, describe it. For managed ground water basins, attach a copy of the management plan.

C. Other Water Supplies: Identify any long-term water supplies not described above (e.g., drainage from upstream Districts, reclaimed urban waste water, transfer agreements with adjacent or other Districts, etc.).

D. Source Water Quality Monitoring Practices: Describe any surface water or ground water quality problems, and how the quality problems limit the use of the water or affect customer use decisions. If water quality problems exist, describe the water quality testing program (frequency of measuring and analyses performed) and which agencies conduct the water testing. Also describe the District's role in the program.

E. Water Uses within the District

1. Agricultural: Describe the type and acreage of crops grown in the District; include evapotranspiration rates, cultural practices and the leaching requirement for each crop. List the types of irrigation systems used for each crop.

2. Municipal and Industrial: Describe the municipal and industrial water use, by customer type, within the rict. Describe, where applicable, the waste water collection and treatment systems, recycled water uses and hods of disposal.

3. Ground Water Recharge: List the quantity of water used for planned and incidental ground water recharge, including method of recharge.

4. Transfers and Exchanges: Describe the source and quantity of water that was transferred and/or exchanged into or out of or within the District, and for what uses. Describe any other water transactions, such as trades, wheeling, etc.

5. Other: Describe any other uses of water.

F. Agricultural Drainage from the District: Identify where surface and subsurface agricultural drainage goes (e.g., to beneficial reuse within the service area, discharged to a river or other water course, another District, saline sink, evaporation ponds, wildlife refuge, etc.). If drainage leaves the District's service area and is reused, identify the location and type of that reuse, if known. Describe any water quality monitoring programs for surface or subsurface drainage water (frequency of measuring and analyses performed). Identify any constituents (e.g., selenium, pesticides, etc.) that limit reuse of the drainage water. Describe any usage limitation resulting from the drainage water quality.

Section 3405 (c) states that "the contracting district or agency shall be responsible for compliance with all applicable State and Federal water quality standards applicable to surface and subsurface agricultural drainage discharges generated within its boundaries." Districts included in the drainage problem area, as identified in *A Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin V ''ey (September 1990),* should also complete Attachment A.

G. Water Accounting: Develop a water inventory for the District based on 1996.

1. *Quantify District Water Supplies*
   a. Surface water supplies, imported and originating within District, by month.
   b. Ground water extracted by the District, by month.
   c. Effective precipitation by month.
   d. Estimated ground water extracted by non-District parties (if records are not available, provide an estimate and basis for estimation).
   e. Recycled water by month (water originating from a municipal waste water treatment plant).
   f. Other supplies by month.

2. *Quantify Water Used*
   a. Conveyance losses, including seepage, evaporation, and operational spills.
   b. Consumptive use by riparian vegetation.
   c. Applied agricultural water, crop evapotranspiration, water used for leaching and cultural practices (e.g., frost protection, soil reclamation, etc.)
   d. Municipal and industrial water use.
   e. Ground water recharge.
   f. Water exchanges and transfers.
   g. Estimated deep percolation within the District.
   h. Flows to perched water table or saline sink.
   i. Total M&I waste water treated and discharged.
   j. Agricultural spill or drain water leaving the District.
   k. Other.

3. *Overall Water Inventory:* Compare total water supplies entering the District with total water leaving th District.

Step 3. Best Management Practices for Agricultural Contractors

Intent:

To develop an implementation plan for agricultural Best Management Practices (BMPs) that have been proven to accomplish improved (more efficient) water management.

Evaluation:

Some BMPs are considered "universally applicable" and others are considered "generally applicable." Reclamation recognizes that, under certain circumstances, the generally applicable practices may not make sense for District implementation. Districts will implement each generally applicable BMP unless the District provides adequate documentation for an exemption.

Detail Expected in an Adequate Plan:

For the purposes of these Criteria, the plan needs to describe the program that the District determines will best accomplish each BMP. The success of some of the practices will depend on cooperative work with other entities. There may be constraints to successful implementation of planned programs. Monitoring and updating will allow the District to modify planned programs that do not accomplish the practice as designed.

A. Critical Best Management Practices for Agricultural Contractors

's section lists the BMPs that all Districts will implement or are already implementing. Provide a description he implementation plan and include time schedules, budgets and monitoring plans. Districts may spend time dying the most effective way to implement a BMP. If a BMP is to be studied, please provide details and schedules of the study.

1. **Measurement devices** - measure, with a device that is rated to have a maximum error of ± six percent, the volume of water delivered by the District to each customer (within five years of contract renewal or if no contract renewal date, by January 1, 1999);
2. **Pricing structure** - adopt a water pricing structure for District water users based at least in part on quantity delivered;
3. **Demand management staff** - designate staff responsible for development and implementation of the water management plan;
4. **Water management services for water users** - Provide or support the availability of the following water management services for water users:
   a. On-farm irrigation and drainage system evaluations (i.e., mobile labs)
   b. Normal year and real-time irrigation scheduling and crop ET information (i.e., CIMIS)
   c. Surface, ground and drainage water quantity and quality data;
   d. Educational programs and materials for farmers, staff, and public.

B. Exemptible Best Management Practices for Agricultural Contractors

Each District shall develop a program to implement the following BMPs unless the District demonstrates that practice does not make sense for the District to implement. Districts may spend time studying the most ctive way to implement a BMP or whether a BMP is appropriate for a District. For appropriate BMPs, ide a description of the implementation plan and include time schedules, budgets and monitoring plans. If a BMP is to be studied, provide details and schedules of the study. These studies must be completed expeditiously and before the next Plan update. Districts should follow the exemption criteria (see Step 5) to justify exemptions and provide the exemption in this Step. See Attachment B for examples of circumstances under which BMPs are not applicable.

1. **Distribution system lining/piping** - line or pipe distributions systems to increase distribution system flexibility and capacity, decrease maintenance and reduce seepage;
2. **Regulatory reservoirs** - construct regulatory reservoirs to improve distribution system delivery flexibility.
3. **Distribution control** - modify distribution facilities and controls to increase the reliability, consistency and flexibility of water deliveries;
4. **Reuse systems** - construct facilities to capture and reuse District operational spills;
5. **Incentive pricing** - implement a pricing structure, such as tiered-block pricing, which promotes one or more of the following goals: a) encouraging more efficient water use at the farm level, b) supporting planned conjunctive use of groundwater, c) increasing groundwater recharge, d) reducing problem drainage, and e) improved management of environmental resources;
6. **On-farm program incentives** - facilitate and/or provide financial incentives and assistance for improved on-farm water management;
7. **Conjunctive use** - increase planned conjunctive use of surface and groundwater within the District;
8. **Land management** - facilitate alternative uses for lands with exceptionally high water duties, or whose irrigation contributes to significant problems;

9. **Pump efficiency evaluations** - coordinate the evaluation of District and private pumps with local utilities, evaluating both energy and water efficiency;
10. **Operational practices and procedures** - evaluate potential District, state and federal policy and institutional changes that could allow more flexibility in water delivery and carry-over storage.

Step 4. ***Best Management Practices for Municipal and Industrial Contractors***

Intent:

To develop an implementation plan for urban Best Management Practices (BMPs) that have been proven to accomplish improved (more efficient) water management.

Evaluation:

Some BMPs are considered "universally applicable" and others are considered "generally applicable." Reclamation recognizes that, under certain circumstances, the generally applicable practices may not make sense for District implementation. Districts will implement each generally applicable BMP unless the District provides adequate documentation for an exemption.

Detail Expected in an Adequate Plan:

This part of the plan identifies District-specific programs to accomplish the BMPs. It is understood that programs developed by wholesale agencies may not be implemented at the retail customer level, except within the District's retail service area. For the purposes of these Criteria, the plan needs to describe the program that the District thinks will best accomplish the practice. The development and implementation of the BMPs in a wholesaler's plan is the responsibility of Reclamation's contractor.

The success of some of the practices will depend on cooperative work with other entities. It is recognized that there may be constraints to successful implementation of planned programs. Monitoring and updating will allow the District to modify any planned programs that do not accomplish the practice as designed.

A. **Critical Best Management Practices for Municipal and Industrial Contractors**

This section lists the BMPs that all Districts will implement or are already implementing. Provide a description of the implementation plan and include time schedules, budgets and monitoring plans. Each District shall also complete and submit the California Urban Water Conservation Council annual report form. If a BMP is to be studied please provide details and schedules of the study.

1. **Distribution system water audits, leak detection and repair**
2. **Metering with commodity rates for all new and existing connections**
3. **Landscape efficiency requirements for new/existing commercial, industrial, institutional, governmental and multi-residential developments.**
4. **Public information**
5. **School education**
6. **New commercial, industrial and institutional water use review**
7. **Conservation pricing - water and sewer service**
8. **Water waste prohibition**
9. **Demand management staff**
10. **Financial incentives**

B. Exemptible Best Management Practices for Municipal and Industrial Contractors

ch District shall develop a program to implement the following BMPs unless the District demonstrates that e practice does not make sense for the District to implement. Districts may spend time studying the most effective way to implement a BMP or whether a BMP is appropriate for a District. For appropriate BMPs, provide a description of the implementation plan and include time schedules, budgets and monitoring plans. If a BMP is to be studied, provide details and schedules of the study. These studies must be completed expeditiously and before the next Plan update. Districts should follow the exemption criteria (see Step 5) to justify exemptions and provide the exemption in this Step. See Attachment B for examples of circumstances under which BMPs are not applicable.

1. **Interior and exterior water audits and incentive programs for single family residential, multi family residential, and governmental/institutional customers**
2. **Plumbing, new & retrofit**
3. **Large landscape water audits and incentives**
4. **Commercial, industrial and institutional conservation**
5. **Landscape water conservation for new and existing single family homes**
6. **Ultra low flush toilet installation program**

Step 5. Exemption Process

Intent:

T demonstrate in a clear and concise manner that a BMP is either not cost-effective, not financially feasible, egal or not environmentally possible for a District to implement.

Evaluation:

These Criteria recognize that some BMPs are not appropriate or possible for some Districts to implement. To document an exemption provide the basis, rationale, and details for excluding a BMP; such documentation shall address, as appropriate, cost-effectiveness, financial feasibility, and environmental or legal constraints to BMP implementation. Reclamation will consider exemption requests prepared using the final AB-3616 exemption process.

Detail Expected in an Adequate Plan:

LEGAL CONSTRAINTS

In order to justify a BMP exemption because it would not be legal for the District to implement, detail the following:

1. A list of any known laws, regulations, court decisions, or other legal constraints that make it illegal for the District to implement the BMP; and
2. A list of the steps that would be required to remove these constraints; and
3. A description of what steps the District has taken to remove these constraints; and
4. Documentation of efforts by the District to work with other entities that would have the legal authority to carry out the BMP within the District's service area.

ENVIRONMENTAL CONSTRAINTS

In order to justify an exemption due to known adverse environmental impacts, the Plan must document the critical environmental issues and known (qualitative and/or quantitative) negative impacts of the BMP and an explanation of why effective mitigation of these impacts is not possible. If mitigation of the environmental impacts is possible, the practice must be implemented unless it can be exempted by another exemption category. For example, if the mitigation costs make the project economically infeasible, a discussion of the mitigation plan and necessary mitigation costs should be included as a part of the economic analysis.

ECONOMIC CONSTRAINTS

In order to justify an exemption due to economic constraints, the Plan must document the following:

1. A benefit-cost analysis which demonstrates that the costs to the District outweigh the benefits to the District over the life of the measure. Districts must perform the analysis by comparing the present value of all benefits to the present value of all costs. Document the projected/estimated benefits and costs and the methodology for analysis (benefits and costs should be quantified to the extent possible). The analysis performed for each excluded BMP (from the District perspective) must include, but is not limited to, the following benefits and costs:

Benefits

- All capital costs avoided by the District which include, but are not limited to, the costs associated with the development of new supplies (e.g., studies, construction, labor, etc.), transportation, and the required increase in storage, distribution capacity, and wastewater facilities and treatment capacity, etc.,
- Operation and maintenance costs associated with the decrease in the production and distribution of wate or the treatment and disposal of wastewater which include, but are not limited to, energy, labor, treatment, storage, drainage treatment and disposal, etc.,
- Water purchases avoided by the District,
- Environmental costs avoided by the District,
- Environmental enhancements,
- Revenues from other entities which include, but are not limited to, revenue from the sale of water made available by the BMP, financial incentives received from other entities, etc.,
- Other benefits to the District customers which include, but are not limited to, hydropower, improved crop yields, improved crop quality, labor savings, fertilizer savings, increased farm income, etc.

Costs

- Capital expenditures incurred by the District for implementation of the BMP which include, but are not limited to, equipment, supplies, materials, construction, etc.,
- Operation and maintenance costs to plan, design, implement, enforce, and evaluate the practice,
- Financial incentives to customers,
- Losses in revenues,
- Costs to the environment, and
- Other costs to the District.

Several accepted benefit-cost analysis methodologies exist (e.g., California Energy Commission's Integrated Resource Planning Methodology, generally accepted accounting principles, etc.). Districts are considered to be the best suited to evaluate their own economic situation with an appropriate methodology.

2. A discussion and quantification, to the extent possible, of other benefits associated with the implementation of the BMP that may be of interest to potential partners, but are not the direct sole responsibility of the District.

NANCIAL CONSTRAINTS

In order to adequately justify an exemption due to financial constraints, the Plan must clearly document the following:

1. The benefits and costs of the BMP to the District; and
2. The District funding needed to implement the cost-effective BMPs; and
3. A discussion regarding why the District cannot finance the BMP through rate adjustments, assessments, etc.; and
4. A discussion of the District's reasonable efforts to secure funding from other entities which include, but are not limited to, lending institutions and bonding authorities and an explanation of why these entities would not provide funding; and
5. The required amount of a grant or subsidy that would be needed to feasibly implement the BMP if financing or partnerships could not be obtained.

Attachment A
Information required of Districts located in the drainage problem area

District's included in the drainage problem area, as identified in *A Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin Valley (September 1990),* are listed, by sub-area, below. If future editions of the drainage report revise the boundaries of the drainage problem area or other factors used to determine which districts are in the drainage problem area, Reclamation will revise Attachment A to conform with the current drainage report.

1. Reclamation districts in the **Grasslands Subarea**: Broadview WD, Central California ID, Del Puerto WD, Firebaugh Canal WD, Mercy Springs WD, Pacheco WD, Panoche WD, San Luis Canal Company, San Luis WD.

2. Reclamation districts in the **Westlands Subarea**: James ID, Tranquillity ID and Westlands WD.

3. Reclamation districts in the **Tulare Subarea**: Alpaugh ID, Atwell Island WD, Lower Tule River ID, and Pixley ID.

4. Reclamation districts in the **Kern Subarea**: Alpaugh ID.

Districts listed above shall describe which recommendations prescribed in *A Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin Valley (September 1990)* have been incorporated in their water conservation programs to improve conditions in drainage problem areas. These recommendations include:

1. Source Control
2. Land Retirement
3. Drainage Water Treatment
4. Drainage Water Reuse
5. Shallow Groundwater Pumping
6. Evaporation Ponds

Provide a description and level of expenditure for each activity designed to address the recommendations of the San Joaquin Valley Drainage Program. Identify how implementation of the recommendations has or will substantially reduce deep percolation on drainage problem lands. Describe which recommendations have not been implemented and why.

establish that a BMP is not applicable to the District, the Plan should explain the reasons why the BMP does apply to the District. This justification must be consistent with Step 1 of the Criteria titled, "Describe the District." Examples of non-applicability for each exemptible BMP are listed below. This list is not all inclusive.

Step 3, B. Exemptible Best Management Practices for Agricultural Contractors

1. **Distribution system lining/piping** - NA could include: completely piped systems, unlined systems or sections of systems which are used as part of a planned conjunctive use program;
2. **Regulatory reservoirs** - NA could include: completely piped systems which do not have delivery constraints;
3. **Distribution control** - NA could include: completely piped systems which do not have delivery constraints;
4. **Reuse systems** - NA could include: completely piped systems which do not have delivery constraints;
5. **Incentive pricing** - None identified;
6. **On-farm program incentives** - None identified;
7. **Conjunctive use** - NA could include: districts which do not overlie a useable ground water basin and thus neither the district nor its customers pump or use ground water;
8. **Land management** - NA could include: districts without irrigable lands that have exceptionally high water duties or whose irrigation does not contribute to significant problems;
9. **Crop & field** - NA could include: districts where are least 50 percent of the customers irrigate crops with non-district water;
10. **Pump efficiency evaluations** - NA could include: districts where neither the district nor its customers use ground water pumps, lift pumps, pressure pumps, filter pumps, etc.;
11. **Operational practices and procedures** - None identified.

Step 4, B. Exemptible Best Management Practices for Municipal and Industrial Contractors

1. **Interior and exterior water audits and incentive programs for single family residential, multifamily residential, and governmental/institutional customers** - None identified.
2. **Plumbing, new & retrofit** - NA could include: districts which supply water only to structures which have no plumbing fixtures or supply water only for exterior uses.
3. **Large landscape water audits and incentives** - NA could include: districts which do not supply water to any landscape of three acres or more.
4. **Commercial, industrial and institutional conservation** - NA could include: districts which provide water only to residential customers.
5. **Landscape water conservation for new and existing single family** homes - NA could include: districts which provide no water to residential customers.
6. **Ultra low flush toilet replacement** - None identified