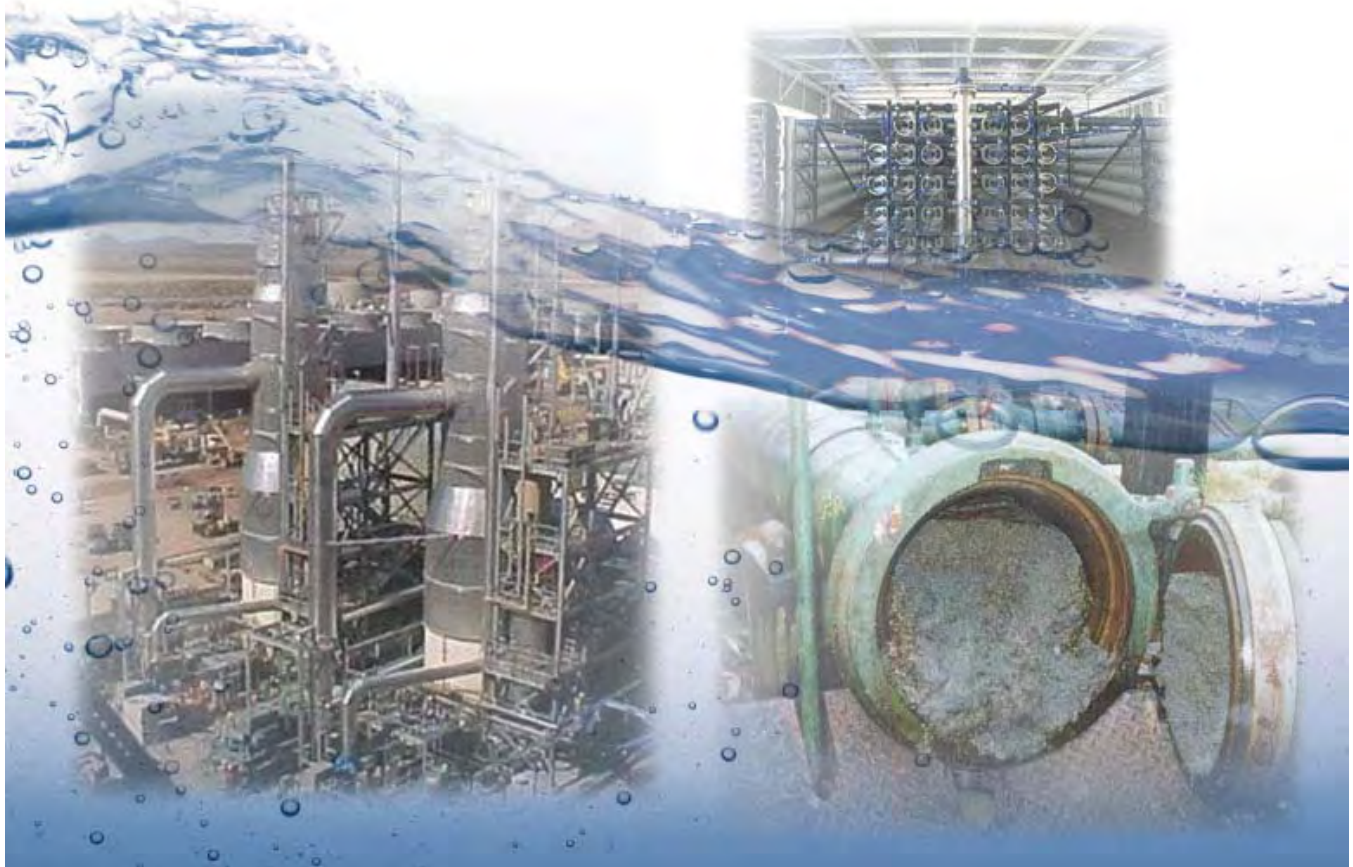


RECLAMATION

Managing Water in the West

Institutional Issues

**Southern California Regional Brine-Concentrate Management
Study – Phase I
Lower Colorado Region**



Contents

	Page
Abbreviations and Acronyms.....	iii
1 Introduction and Study Objectives.....	1
1.1 Introduction	1
1.2 Study Objectives	3
1.3 Study Components	3
1.4 Report Objectives	4
2 Potential Institutional Arrangements.....	5
2.1 Multiple Owners.....	5
2.2 Joint Powers Authority.....	6
2.3 Single Owner with Contracts	7
2.4 Single-Owner Special District.....	7
3 Institutional Concerns.....	9
3.1 Project/System Development	9
3.2 Environmental and Permit Compliance	10
3.3 Permit Violation Management and Enforcement.....	11
3.4 Clear Accountability	11
3.5 Asset Management and Protection of Investments	12
3.6 User Commitments.....	12
3.7 Involvement in Decision to Add Users	13
3.8 Project Funding	13
3.8.1 Outside Funding	13
3.8.2 Involvement in Rate Setting	14
3.9 Capital Reserves and Bonding	14
3.10 Dispute Resolution	15
4 Local Partnerships	17
4.1 Santa Ana Regional Interceptor/Santa Ana Watershed Project Authority	17
4.2 Calleguas Regional Salinity Management Project	19
4.3 City of Los Angeles/West Basin MWD Reuse/Brine Agreement	21
4.4 IRWD South Irvine Brine Line Wastewater/Brine Disposal System	21
4.5 South Orange County Wastewater Agency.....	22
4.6 Orange County Sanitation District Outfall.....	24
4.7 South San Diego Bay Regional Brine Conveyance Facility	24
4.8 San Elijo Joint Powers Authority	25
4.9 Encina Wastewater Authority	28
4.10 Oceanside Outfall	28
4.11 Summary	29
5 References	33

Tables

Table 1.1	List of BEMT Members	1
Table 4.1	Types Of Organizational Structures Matrix	30

Figures

Figure 1.1	Map of Southern California Study Area	2
Figure 4.1	SARI System.....	18
Figure 4.2	Map of planned Calleguas Regional Salinity Management Project	20
Figure 4.3	Map of South Irvine Brine Line System	22
Figure 4.4	SOCWA Member Agency Boundaries	23
Figure 4.5	San Elijo Joint Powers Authority Wastewater Service Area	26
Figure 4.6	San Elijo Joint Powers Authority Recycled Water Service Area	27

Abbreviations and Acronyms

afy	acre-feet per year
BEMT	Brine Executive Management Team
CEC	constituent of emerging concern
ELWRF	Edward C. Little Water Recycling Facility
EMWD	Eastern Municipal Water District
EWA	Encina Wastewater Authority
GWR	Groundwater Replenishment
IEUA	Inland Empire Utilities Agency
IRWD	Irvine Ranch Water District
IWDP	Industrial Wastewater Discharge Permits
JPA	Joint Power Authority
LAWRP	Los Alisos Water Reclamation Plant
MF	microfiltration
mgd	million gallons per day
MWD	Municipal Water District
MWDSC	Metropolitan Water District of Southern California
MWWD	Metropolitan Wastewater Department
NPDES	National Pollutant Discharge Elimination System
O&M	operation and maintenance
OCSD	Orange County Sanitation District
OCWD	Orange County Water District
Reclamation	United States Department of the Interior Bureau of Reclamation
RO	reverse osmosis
RWQCB	Regional Water Quality Control Boards
SARI	Santa Ana Regional Interceptor
SAWPA	Santa Ana Watershed Project Authority

SBOO	South Bay Ocean Outfall
SEJPA	San Elijo Joint Powers Authority
SEWRF	San Elijo Water Reclamation Facility
SIBL	South Irvine Brine Line
SMP	Salinity Management Project
SOCWA	South Orange County Water Authority
WMWD	Western Municipal Water District

1 Introduction and Study Objectives

This section of the report has the following subsections:

- Introduction
- Study Objectives
- Study Components
- Report Objectives

1.1 Introduction

The Southern California Regional Brine-Concentrate Management Study is a collaboration between the United States (U.S.) Department of the Interior Bureau of Reclamation (Reclamation) and 14 local and state agency partners. Table 1.1 provides a list of the agencies represented on the Brine Executive Management Team (BEMT). The project is funded on a 50/50 cost-sharing basis between Reclamation and the cost-sharing partners, who together form the BEMT. The purpose of the BEMT is to formulate, guide, and manage technical activities of the study. Figure 1.1 shows a map of the study area.

TABLE 1.1
LIST OF BEMT MEMBERS

List of BEMT Members

City of San Bernardino	Orange County Sanitation District
California Department of Water Resources	Otay Water District
City of San Diego	Rancho California Water District
Inland Empire Utilities Agency	San Diego County Water Authority
Sanitation Districts of Los Angeles County	Santa Ana Watershed Project Authority
Los Angeles Department of Water and Power	U.S. Department of the Interior Bureau of Reclamation
Metropolitan Water District of Southern California	Western Municipal Water District
National Water Resources Institute/ Southern California Salinity Coalition	

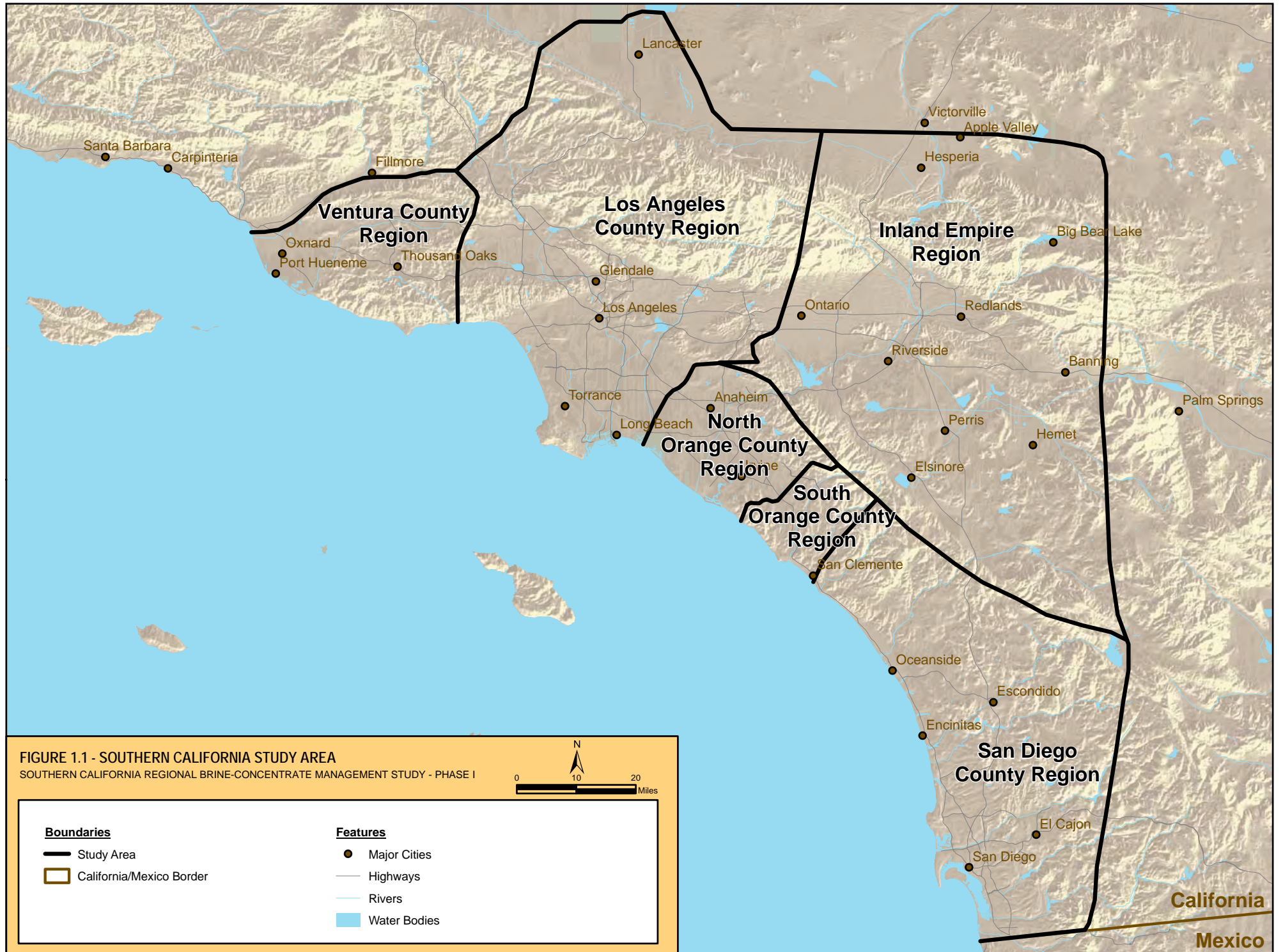
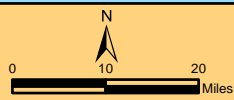


FIGURE 1.1 - SOUTHERN CALIFORNIA STUDY AREA
 SOUTHERN CALIFORNIA REGIONAL BRINE-CONCENTRATE MANAGEMENT STUDY - PHASE I



Boundaries		Features	
	Study Area		Major Cities
	California/Mexico Border		Highways
			Rivers
			Water Bodies

1.2 Study Objectives

The objectives of this study are twofold:

- To assess the brine-concentrate landscape in southern California including brine-concentrate management technologies, regulatory environment, existing infrastructure, and future needs
- To make recommendations for Phase 2 pilot/demonstration projects

To accomplish these objectives, the study will develop six reports that ultimately will be incorporated into a final study report.

1.3 Study Components

The Southern California Regional Brine-Concentrate Management Study has six major components. Each component is focused on providing a piece of the southern California brine-concentrate management landscape. Each component will be summarized in a draft report that will be incorporated into the Final Study Report. The six components of the study are:

- Survey Report – A regional survey to collect data from local agencies about the brine-concentrate landscape in southern California
- Regulatory Issue and Trends Report – A summary of regulatory issues and trends associated with implementing a brine-concentrate project in southern California
- CECs Report – A summary of constituents of emerging concern (CECs) and how regulation of CECs might affect brine-concentrate management in southern California
- Institutional Issues Report – A summary of organizational structures that can be used to foster collaborative relationships between agencies implementing brine-concentrate management projects
- Brine-Concentrate Management Treatment and Disposal Options Report – A summary of brine-concentrate technologies and identification of potential local and regional solutions
- Pilot/Demonstration Project Recommendations Report – A list of recommended pilot/demonstration projects that could be implemented in the inland and coastal areas southern California

These six reports will be incorporated as appendices in the Final Study Report. The Final Report will provide highlights and conclusions of the six component reports in an executive summary format.

1.4 Report Objectives

This report discusses the potential organizational structures that could be implemented to plan, design, construct, and operate and maintain regional brine-concentrate management systems. As a project is developed, different types of organizational structures could be used during different phases of the project (for example, one structure for construction and another during system operation). The type of organizational structure that is put into place will depend on funding availability, on the needs of the individual agencies/users, existing facilities, and on the timing of project implementation. In addition, other internal and external agency political and historical working relationships could affect the type of organization structure selected. This report will focus on the different organizational structures and how project timing, funding, as well as regulations/permitting will affect the type of structure selected.

2 Potential Institutional Arrangements

The type of organizational structure used is a complex but important issue when implementing a project. Responsibility and implementation issues vary widely depending on who owns, constructs, operates, and maintains the system. There are four types of organizational structures that will be discussed in this report:

- Multiple Owners
- Joint Powers Authority (JPA)
- Single-Owner Multiple Contracts
- Single-Owner Special District

This section of the report provides a general description of each of the four types of organizational structure that have been used successfully on Southern California Regional brine-concentrate systems.

2.1 Multiple Owners

A multiple-owner organizational structure is one in which multiple agencies are partial owners of a system. Under this structure, the agencies jointly fund and operate the system, with each one building a portion(s) of the facility that will be required to serve the specific agency's needs. No single agency is responsible for the overall system. Individual agency's responsibilities are summarized in a detailed agreement, which is developed and approved by the participating agencies. Cooperation between agencies is required to connect system components, as well as to resolve permit and capacity ownership issues especially at the downstream end of the system. This coordination of capacity is important so that the system is made large enough to accommodate upstream flows as well as planned or potential future flows. The increased costs associated with sharing a system are worked out in the detailed agreement so that all agencies share the cost of upsizing facilities equitably. Regulatory compliance also is detailed in the agreement.

The advantages of a multiple-owner structure include:

- Each agency-owner pays for the agency's portion of the system
- Each agency owns and is responsible for the portion of the system in the agency's service area
- No single agency is responsible for the overall system

The disadvantages of a multiple-owner structure include:

- It requires a high level of cooperation between participating agencies
- It requires development of a detailed agreement regarding construction, cost sharing, regulatory compliance, and operation of the system
- No single agency is responsible to secure financing for the entire system
- A downstream user might be responsible for permitting or regulatory compliance even though it has limit or no control over upstream users' discharges
- Downstream facilities need to be designed to accommodate upstream flows, and the cost for upsizing facilities must be shared

The City of Los Angeles/WBMWD is an example of a multiple agency organizational structure.

2.2 Joint Powers Authority

A JPA is a common organizational structure for regional facilities serving multiple agencies. A JPA is a public agency created pursuant to the Joint Exercise of Power Act of 1980 (Government Code Section 6500 et seq.). Two or more government agencies can establish a new public entity authorized to exercise commonly held powers (in other words, any power held by any member agency can be exercised). A JPA is a group of legally distinct entities, each of which has its own governing board and is independent from other member agencies. JPAs are established by entering into an agreement for joint exercise of power, a JPA agreement, establishes operational constraints, the composition of the governing board, funding arrangements, staffing, financial provisions, and duration of the authority (Stava, Jeff, 2006).

Advantages of a JPA include:

- Ability to provide a broader array of financial options to member agencies, including loaning money, contracting, and selling bonds secured by multiple agencies resulting in lower interest rates
- Cost sharing by participating agencies
- Ability to add new members over time
- Member agencies gain the benefit of exercising the powers of another agency through the JPA (for example, a JPA can contract a design-build project for a participating agency if one participating agency has the authority to enter into design-build contracts and the JPA has the power to exercise this power)

Disadvantages of a JPA include:

- Development of a joint exercise of power agreement is time and labor intensive
- Extra administrative costs can be incurred to operate the JPA

JPAs have been used for projects benefiting multiple agencies throughout California and are an effective and proven organizational structure type. The Santa Ana Watershed Project Authority (SAWPA) and Encina Wastewater Authority (EWA) are two examples of JPAs in Southern California.

2.3 Single Owner with Contracts

A single owner with contracts is another approach for owning and operating a system. The single owner funds the system as a regional asset. The single owner owns and operates the system after it is completed, with contributions from the users of the system.

Advantages to a single owner with contracts organizational structure include:

- One owner controls the construction, regulatory compliance, and operation of the system
- Costs are shared with system users by means of contracts
- Users can be public or private entities and can have different functions (such as cities, water districts, or industries)

Disadvantages of a single owner with contracts include:

- Costs for construction are funded by a single agency, which can result in increased interest rates because funding is based on the revenues of the single agency
- Inequity of cost sharing may result from unfair contract terms
- Regulatory compliance is the responsibility of the owning agency
- Ability of users to gain access to facility or systems is controlled by the owner

The Metropolitan Wastewater Department (MWWD) within the City of San Diego is an example of a system by a single owner with contracts that has proven to be effective. MWWD contracts with 15 participating agencies to treat 180 million gallons per day (mgd) of wastewater daily and has authority to issue Industrial Wastewater Discharge Permits (IWDPs) to industrial users.

2.4 Single-Owner Special District

A single-owner special district is another organizational structure type. The single-owner special district structure could require an entity to be a member agency of the district to participate in the project. This type of structure is similar to a JPA and a single owner with contracts.

A special district is “any agency of the state for the local performance of governmental or proprietary functions within limited boundaries” (Government Code 16271 [d]). A special district has four characteristics (Special District Fact Sheet, 2006):

- It is a form of government
- It is governed by a board
- It provides services and facilities
- It has a defined service area or boundary

Special districts are formed either under a generic principle act or a special act for unique circumstances. Most water agencies that are special districts are single-function, enterprise, independent districts. This means that the district has a single function (for instance, providing water services). Such a district is managed like a business in that services are paid for via user fees, and it has an independently elected or appointed Board of Directors (Mizany and Manatt, 2002).

The advantages of single-owner special districts include:

- The districts are easy and quick to set up
- Construction, regulatory compliance, and operation of systems are undertaken by a single owner

The disadvantages of single-owner special districts include:

- Use of the system requires membership in district
- Ability for users, specifically private companies, to use systems could be limited if the companies do not have an agreement with the district
- One agency controls cost and access to the system unless the special district’s board is controlled by its member agencies

An example of a special district is the Metropolitan Water District of Southern California (MWDSC) and the Calleguas Municipal Water District (MWD).

3 Institutional Concerns

Multiple issues surround the evaluation of an institutional structure for implementation of any facilitator system, including a regional brine-concentrate system. The following sections outline several potential implementation issues and their relevance to each of the four types of organizational structures described in Section 2 of this report. The contents of this section include the following topics:

- Project/System Development
- Environmental and Permit Compliance
- Permit Violation Management and Enforcement
- Clear Accountability
- Asset Management and Protection of Investments
- User Commitments
- Involvement in Decision to Add Users
- Project Funding
- Capital Reserves and Bonding
- Dispute Resolution

3.1 Project/System Development

The construction of a project could be completed under any of the organizational structures discussed in Section 2. The type of structure used would depend on project timing, funding availability, and the needs of individual agencies.

A system can be developed and built by a single agency or multiple agencies. If multiple agencies are responsible for developing a regional system, downstream agencies most likely would size conveyance facilities to satisfy local and not regional needs. This would result in constraints for upstream users because new or expanded facilities or systems would have to be developed to connect to the existing facilities, which would increase costs to the upstream users. If a system is developed in this way, an agreement between agencies (that is, a multiple-owner agreement) eventually would need to be developed to address system costs and regulatory compliance issues.

Under a multiple-owner agreement, a detailed agreement about the funding, regulatory compliance, construction, as well as operation and maintenance (O&M) would have to be developed. This process can result in delays in regional system operation while issues and concerns of the agencies are addressed. However, an individual agency can proceed with its portion of the system so that these facilities are ready to start up as soon as issues are resolved, an agreement is in place, and shared or downstream facilities are online. The Encina JPA was initially developed in this manner. This agency eventually evolved into a JPA structure to accommodate changing needs of the member agencies.

Developing a JPA is a cumbersome process because of the time and effort required to establish the legal entity. For a JPA to be successful, all agencies involved in the process must have a common goal or need that occurs at the same time. If an agreement can be reached, a JPA can enable agencies to have improved access to funding (that is, improved bond rating and potentially lower interest rates) than an agency might have had as a single entity. If timing of a project is critical, a JPA might not be the optimal organizational structure type. In this case, having a single agency in charge of the project could be the best approach.

The single-owner organizational structure can act quickly to develop systems that satisfy users' needs. This is particularly effective when the owning agency can fund the project and begin construction of a system before user contracts are in place. However, some agencies need to have user contracts signed prior to funding a project because project implementation is contingent on the availability of user fees. Another disadvantage is that the bond rating for a single agency might be lower, which can result in higher interest rates.

Implementation of a project under a single-owner special district can be effective because the district can quickly move to implement a project. However, this organizational structure has the following drawbacks:

- A single agency funds the project
- User agreements may be needed
- User agreements can be entered into only with member agencies of the special district

3.2 Environmental and Permit Compliance

A brine-concentrate system can encounter different regulatory and permitting requirements if the system crosses jurisdictional boundaries. Permit/regulatory compliance involves determining which party is responsible for obtaining each permit and complying with regulations. For the purpose of this discussion, the National Pollutant Discharge Elimination System (NPDES) permit will be used as an example, although it is not the only permit or regulatory compliance issue facing an agency that operates a brine-concentrate system.

Regional Water Quality Control Boards (RWQCBs) typically prefer to have a single entity responsible for permit compliance, resulting in a single NPDES permit for a system. For this reason, a single agency will need to be identified to take responsibility for permitting and regulatory compliance. An example of this approach is the City of San Diego's Industrial Wastewater Discharge Permit System where the City of San Diego holds the NPDES permit for the system and has agreements with users detailing water quality, monitoring, and reporting requirements. This approach allows the user that is farthest downstream and in a multiple-agency agreement, a JPA, a single owner with contracts, or a single-owner special district to have the authority to be the responsible party for discharge permits and to specify the detail monitoring and reporting requirements for each user.

The multiple-owner organizational structure creates complexity for permit and regulatory compliance. Each owner would be responsible for permitting and regulatory compliance for the portion of the system it owns. This can put additional responsibility on downstream owners who could be held responsible for a water quality issue created by upstream agencies (such as an NPDES permit for an ocean outfall). Because of the complexities of multiple owners using an interconnected system, a detailed agreement needs to be formulated and agreed upon by all participating owners.

For JPAs, single owners with contracts, and single-owner special district, one entity holds the NPDES permit and specifies water quality requirements for discharging to the system.

3.3 Permit Violation Management and Enforcement

Another issue facing system operation is the management and enforcement of permit violations. This is important because, depending on the organizational structure selected, different agencies could be responsible. This holds true particularly in the multiple agency structure where agencies are responsible for the operation of the system. Therefore, as part of an inter-agency agreement, deciding who is responsible for enforcing compliance and issuing notices of infractions is important.

The multiple owner organizational structure type is likely to have the most difficulty enforcing compliance because no single entity or board exists to hear grievances. In addition, each owner could have its own permit violation and enforcement practices, which might not be consistent or in the best interest of the system as a whole. For this reason, it is important that permitting management and enforcement be addressed as part of the detailed agreement between agencies.

A JPA organizational structure allows the JPA or board-agreed-upon member agency to facilitate enforcement of violations of system use. The optimal arrangement would be to have the JPA structured as the party holding a permit and assume responsibility for violation management and enforcement.

Both single owner with contracts and single-owner special district have fewer complexities related to permit violation management and enforcement because a single agency can regulate users and ensure compliance. Also, violation infractions and enforcement mechanisms are spelled out in contracts between the owner agency and system users.

3.4 Clear Accountability

For an organizational structure to operate effectively there must be a clear process of accountability. Accountability for permit compliance and O&M of the facility is vital to system viability. For this reason, responsibility for the system has to be clearly outlined prior to operation of the system.

In a multiple-owner organizational structure, no single entity holds clear accountability for permit compliance and operational issues; instead, these responsibilities are handled by each of the system owners. Therefore, clear accountability is difficult because different entities are responsible, depending on where the permit violation or maintenance issue occurs. One way to address this is to set clear accountability responsibilities in the detailed agreement.

For a JPA, a single owner with contracts, or a single-owner special district organizational structure, a single entity is responsible for permitting and operations of the system. Therefore, accountability is clear regarding who is responsible for permit compliance and O&M issues.

3.5 Asset Management and Protection of Investments

To operate in the best interest of all participating agencies, asset management and protection of investments is a critical issue. Defining who is responsible for what aspects of the system changes, depending on the type of organizational structure.

A multiple-owner arrangement requires an agreement outlining individual responsibilities for each owner or appointment of one agency to be responsible for specific tasks relating to construction and O&M. If agreements about O&M and capital improvements are not worked out, a funding or management division at one agency could result in a system failure that affects all the agencies.

In contrast, a JPA, a single owner with contracts, or a single-owner special district has a single entity responsible for construction and O&M. Participating agencies pay for capital and O&M costs through rates or fees. Therefore, asset management is the responsibility of the single-agency owner.

3.6 User Commitments

Solid financial and accountability commitments from each participating agency are essential for a project to move forward. The most favorable organizational structure for user commitments is a multiple-owner structure because participating agencies would not build the system unless a need existed. However, each agency would build only the system components required to meet its needs. This can lead to near-term capacity issues for downstream/upstream owners, as well as the possibility of limited capacity in the system if additional users are added to the system.

With a JPA or single-owner special district organizational structure, the need exists to set up a rate structure to account for actual and future capacity that each agency wants. This rate structure has to account for future capacity requirements and to provide for an equitable distribution of costs (that is, not just commodity charges). In both of these structures, member agencies are already committed to development of the system so obtaining user commitments has occurred prior to the decision to

develop a system. However, obtaining Board (or member agency) approval for a project can delay its implementation.

In an arrangement with a single owner with contracts, contracts would include language describing each participating agency's available capacity and rates. These contracts could be amended as needed, thus leaving room to accommodate future users or meet expanded needs of existing users. For some agencies, it may be necessary to have these contracts in place prior to project implementation, which can slow the implementation process.

3.7 Involvement in Decision to Add Users

In a system where multiple agencies are users, a decision to add new users is contentious because most systems have a finite capacity. In a multiple-owner organizational structure, each owner would have rights to a certain amount of capacity. However, any member owner has the right to allow other users to use part of its capacity in the system without approval from another agency. In addition, disputes over unused capacity could occur if owners "hold on" to unused capacity, or let new users within their jurisdiction use system capacity when existing owners need additional capacity to satisfy needs.

In the organizational structure of a single owner with contracts, each agency has rights to a specific amount of capacity. Also, the owning agency has fiduciary control of the system, and users have the ability to use capacity in the system.

Unlike the other organizational structures, a JPA and a single-owner special district allow participating agencies to be involved in determining which new users are given access to system capacity. In both of these organizational structures, member agencies have decision-making power through its governing board decisions (in other words, member agencies serve on the governing board).

3.8 Project Funding

3.8.1 Outside Funding

The availability of outside funding might be crucial to the success of project implementation. Securing outside funding with a multiple-owner arrangement is more difficult than the other organizational structures because no single entity can act to secure outside funding for all the system owners. Therefore, system implementation could be delayed if one agency does not secure funding. Also, the individual agencies might pay higher interest rates. One advantage of having multiple agencies involved in a project is that it enables sharing of expertise about funding.

Funding of projects through a JPA can ease securing outside financing because a single entity represents the project. A JPA has the advantage of the financial bonding

based on multiple agencies providing fiscal capabilities and user fees. This pooling-bonding capability can result in lower interest rates.

Organizational structures such as a single owner with contracts or a single-owner special district have the advantage of a single entity seeking project funding. However, if the owner does not have the capability to acquire funding, then the project does not get implemented.

3.8.2 Involvement in Rate Setting

Rate setting for a system is based on the debt repayment required for construction and the cost of O&M and future rehabilitation. The amount of input users have on the rate setting process is dependent upon the organizational structure.

For multiple owner, JPAs, or single-owner special district structures, all users have input into the rate-setting process through either the agreement or the governing board. In a single owner with contracts organizational structure, the single owner sets rates based on individual contractual agreements negotiated with system users. In either case, issues of equity or fairness can arise, especially in the long-term as the project evolves; due to arising complications, or due to unforeseen changes. Under the single owner with contracts structure, this can put the owning agency at financial risk if the contract agencies have an alternative solution and the owning agency is relying on the fees to pay for O&M or capital costs. The other structures also may be at risk depending on how firm the commitments are within the agreements between agencies.

3.9 Capital Reserves and Bonding

Capital reserves and bonding play a key role in the feasibility of most infrastructure projects. Each agency could secure funding individually or as a group, depending on the type of organizational structure implemented.

A project with multiple owners relies on the ability of each individual agency to fund capital and run operations. Unlike the other institutional structures options, a multiple-owner structure does not include a single entity to hold responsibility for finances. Therefore, it may be difficult for the overall system to secure bonding as each agency would have to secure separate financing for the project to succeed. However, agencies can share expertise about obtaining funding.

Funding of projects through a JPA can reduce costs associated with bond financing (lower the interest rates) by enabling pooling of agency borrowing capability. In addition, a JPA allows sharing of experience and financial expertise between participating agencies.

A single owner with contracts would provide a single entity responsible for managing financials and acquiring bonding. However, the funding of other agency projects might impact the ability of the entity to secure financing. In addition, if the owner agency is unable to secure financing for the projects, the contract agencies could be left without a feasible option.

If a structure by a single-owner special district is implemented, the district is responsible for managing capital reserves and bonding, with input from the member agencies through the representative on the board of directors. Funding is obtained based on the funding capability of the special district alone.

3.10 Dispute Resolution

Having a dispute resolution mechanism is a key factor in any institutional arrangement being effective. All interested parties must have a mechanism to express grievances or propose changes. However, depending on the type of institutional arrangement, how a dispute is resolved may vary. For example, in a JPA or multiple owners' arrangement, the board of directors may resolve disputes via Board voting. In institutional arrangements where a single agency owns the system, recourse on disputes may be limited to the process put in place by the owning agency. The owning agency in this case would have the final decision on how all disputes are resolved or handled.

4 Local Partnerships

Agencies in southern California have implemented projects using all of the organizational structures discussed in this report. It is clear that multiple approaches can be used to achieve the objectives of agencies. The organizational structure selected depends on financial viability, project timing, and the number of partners or users connected to a system. In fact, southern California agencies have used each of the organization structures to implement brine-concentrate and wastewater disposal projects.

The following sections of the report focus on examples of implementation of the different organizational structures for brine-concentrate management projects in southern California. The contents of this section include the following topics:

- Introduction
- Santa Ana Regional Interceptor/Santa Ana Watershed Project Authority
- Calleguas Regional Salinity Management Program
- City of Los Angeles/West Basin MWD Reuse/Brine Agreement
- IRWD South Irvine Brine Line Wastewater/Brine Disposal System
- South Orange County Wastewater Agency
- Orange County Sanitation District Outfall
- South San Diego Bay Regional Brine Conveyance Facility
- San Elijo Joint Powers Authority
- Oceanside Outfall
- Summary

4.1 Santa Ana Regional Interceptor/Santa Ana Watershed Project Authority

The Santa Ana Regional Interceptor (SARI) line is a regional brine line designed to convey 30 mgd of non-reclaimable wastewater from the upper Santa Ana River basin to the ocean for disposal after treatment. Figure 4.1 shows a map of the SARI pipeline. The non-reclaimable wastewater consists of concentrate from groundwater desalination and industrial processes. Domestic wastewater is also received on a temporary basis. In addition, wastewater from the northeast portion of Orange County is conveyed via the SARI line. The SARI line conveys flow to OCSD's Plant 1 and is diverted to Plant 2 for treatment prior to discharge at OCSD's ocean outfall. Currently, the SARI system consists of over 93 miles of pipeline of which SAWPA owns 72 miles and OCSD owns 21 miles. In the Orange County portion of the SARI, SAWPA owns the right to convey up to 30 mgd of flow in OCSD's system. In addition, SAWPA has the right to purchase up to 30 mgd of treatment plant capacity. Currently, SAWPA purchases approximately 13 mgd.

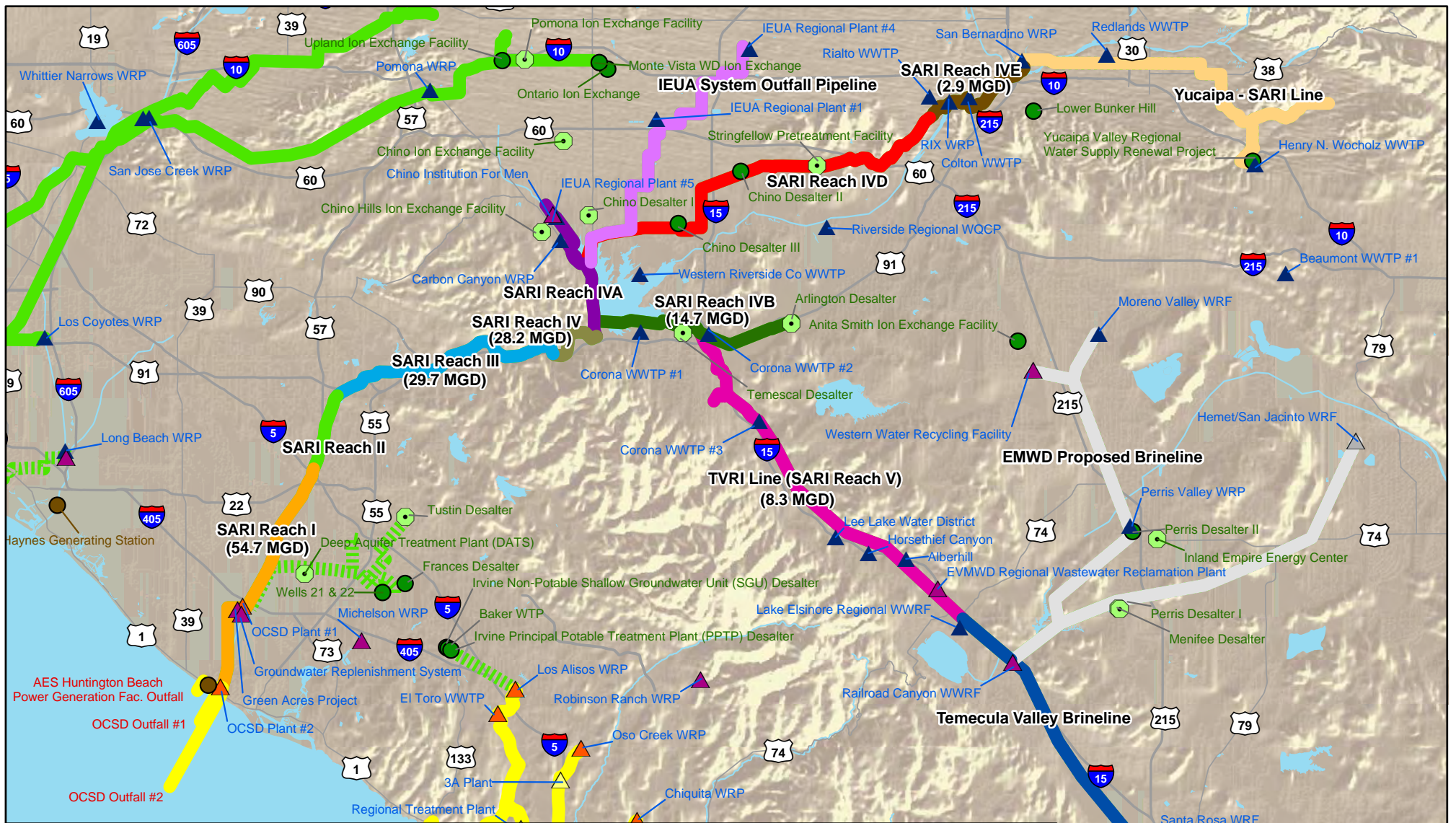
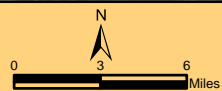


FIGURE 4.1 - SARI SYSTEM

SOUTHERN CALIFORNIA REGIONAL BRINE-CONCENTRATE MANAGEMENT STUDY - PHASE I

Wastewater Treatment Plants	Wastewater Outfalls	Desalination Facilities	SARI Brineline System	SARI Reach
<ul style="list-style-type: none"> ▲ Land Discharge ▲ Recycled Water Only ▲ Stream Discharge ▲ Ocean Discharge ▲ Other 	<ul style="list-style-type: none"> — Wastewater Outfalls — Planned or Potential Ocean Outfall 	<ul style="list-style-type: none"> ● Existing Groundwater Desaliner ● Planned Groundwater Desaliner ■ Proposed Seawater Desalination Plant 	<ul style="list-style-type: none"> — EMWD Proposed Brineline — IEUA System Outfall Pipeline — SARI Reach I — SARI Reach II — SARI Reach III — SARI Reach IV 	<ul style="list-style-type: none"> — SARI Reach IVA — SARI Reach IVB — SARI Reach IVD — SARI Reach IVE — TVRI Line (SARI Reach V) — Temecula Valley Brineline — Yucaipa - SARI Line
Features <ul style="list-style-type: none"> — Highways — Rivers — Water Bodies 		Industrial Ocean Outfalls <ul style="list-style-type: none"> ● Power Plants ● Industrial/Others 	<p>Note: Reported SARI Brineline System flows represent average daily flows projected by planning year 2035</p>	



SAWPA is a Joint Powers Authority, classified as a Special District. SAWPA carries out functions useful to its member agencies. SAWPA was first formed in 1968 as a planning agency, and then it reformed in 1972 with a mission to plan and build facilities to protect the water quality of the Santa Ana River Watershed. The agreements formalizing the current agency were signed in 1974 and went into effect in 1975. SAWPA has five member agencies that are represented through a governing commission composed of five members. The five member agencies are Eastern Municipal Water District (EMWD), Inland Empire Utilities Agency (IEUA), Orange County Water District (OCWD), San Bernardino Valley Municipal Water District, and Western Municipal Water District (WMWD). Each member agency is represented by its commissioner or by an alternate member agency representative.

The SAWPA mission is to:

- Facilitate communication
- Identify emerging opportunities
- Develop regional plans
- Secure funding
- Implement programs
- Build projects
- Operate and maintain facilities

SAWPA's focus is on water, wastewater, environmental, and regional initiatives and projects. One key issue facing SAWPA's member agency is managing water quality. This is the impetus for SAWPA's involvement in the SARI pipeline because it helps move salt out of the basin and protects groundwater from degradation arising from industrial discharges.

4.2 Calleguas Regional Salinity Management Project

Eastern Ventura County has abundant sources of groundwater, but much of the water is too high in salts for municipal and agricultural use. Salt levels are increasing in surface water supplies as well, which is harmful to the environment. By treating groundwater to remove salts and moving those salts away from surface waters and into the planned Calleguas Regional Salinity Management Project (SMP), water agencies in Ventura County will solve a water quality problem, while improving local water supply reliability (Calleguas Municipal Water District, Undated).

The Calleguas SMP is a planned pipeline system that would convey and distribute treated wastewater and brine-concentrate from groundwater desalting facilities to downstream users or the ocean outfall. The project ultimately will convey flows from the City of Simi Valley through Moorpark, Camarillo, and central Ventura County to an outfall at Port Hueneme. Calleguas MWD received approval to construct this outfall in 2008. Figure 4.2 shows a map of the project.

FIGURE 4.2 MAP OF PLANNED CALLEGUAS REGIONAL SALINITY MANAGEMENT PROJECT



Source: Calleguas Municipal Water District – Regional Salinity Management Pipeline, Undated.

Flows will be discharged to the ocean, where natural salt levels are much higher, when there are insufficient demands for reuse. The purpose of the SMP is to improve reliability of the water supply and water quality by facilitating the development of up to 40,000 acre-feet per year (afy) of new, local water supplies. The SMP also will expand the distribution of recycled water from areas with abundant supplies to areas needing additional water supplies. Water quality in the region will be improved by reclaiming highly saline water and conveying it out of the watershed via the ocean outfall. Salt will be removed from groundwater using membrane treatment, and concentrate will be sent to the SMP. Tertiary-treated wastewater, which is too saline for discharge to local streams, will be sent to the SMP during wet periods when it is not needed for irrigation. This project was identified as part of the Calleguas Creek Integrated Regional Water Management Plan and is being coordinated by the Calleguas MWD as part of the Overall Calleguas Creek Watershed Management Plan. In addition to Calleguas MWD, a number of local retail water providers are participating in the project. This is an example of a single-owner special district organizational structure.

4.3 City of Los Angeles/West Basin MWD Reuse/Brine Agreement

The City of Los Angeles and West Basin MWD have an agreement that enables the City of Los Angeles to supply wastewater flows to West Basin MWD and for West Basin WMD to convey brine-concentrate flows to the City of Los Angeles Hyperion outfall. This is an example of a multiple-owner organizational structure because each agency owns part of the system and an agreement exists between the entities.

The West Basin MWD operates a recycling system to reclaim wastewater from the City of Los Angeles Hyperion Treatment Plant. The plant will ultimately deliver tertiary-treated reclaimed water with a capacity of up to 100,000 afy via the "West Basin Water Recycling Project." The West Basin MWD project consists of approximately 22,000 acre-feet of recycled water that is distributed annually to more than 150 users in the South Bay area of Los Angeles. These sites use recycled water for a wide range of non-potable applications including irrigation and industrial uses. The Edward C. Little Water Recycling Facility (ELWRF) is a treatment facility that produces five different qualities of custom-made recycled water or "boutique water" that meet the unique needs of West Basin's municipal, commercial, and industrial customers. The five types of designer water include:

- Tertiary Water (Title 22) for a wide variety of industrial and irrigation uses
- Nitrified water for industrial cooling towers
- Softened reverse osmosis water: secondary treated wastewater purified by microfiltration (MF), followed by reverse osmosis (RO), and disinfection for groundwater recharge
- Pure reverse osmosis water for refinery low-pressure boiler feed water
- Ultra-pure reverse osmosis water for refinery high-pressure boiler feed water

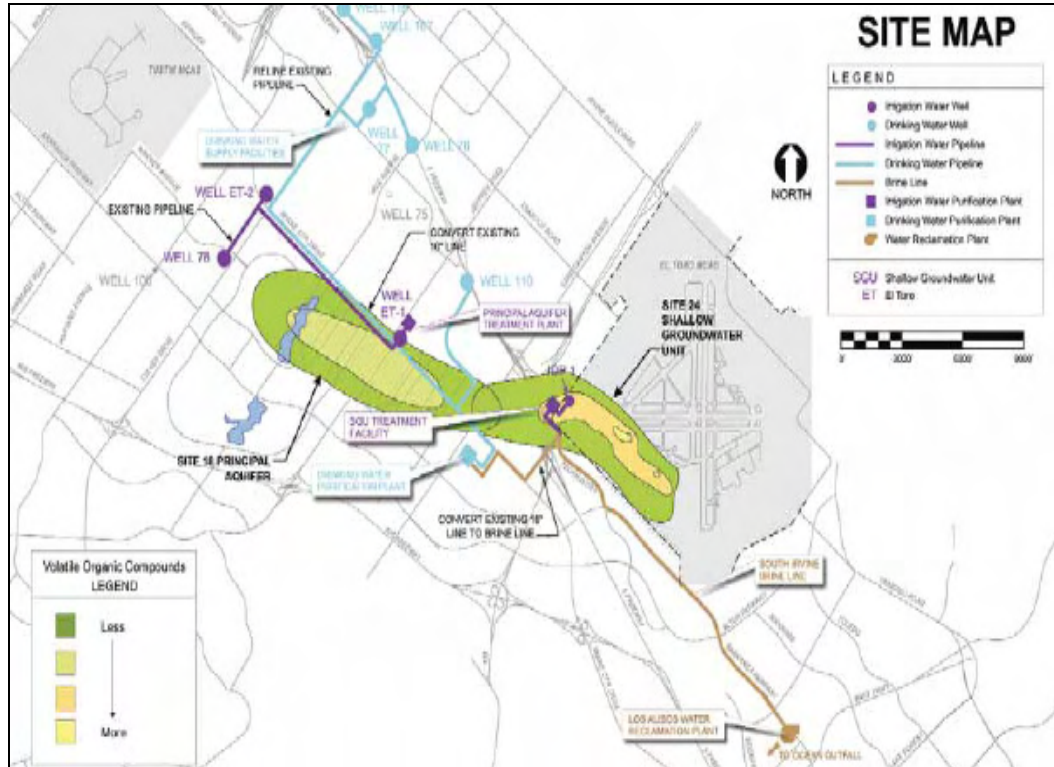
Brine-concentrate from the ELWRF is conveyed back to the Hyperion Plant for discharge via an existing ocean outfall. This system is an example of a multiple-owner organizational structure because the City of Los Angeles and West Basin MWD own system components and have an agreement to share facilities and costs.

4.4 IRWD South Irvine Brine Line Wastewater/Brine Disposal System

The South Irvine Brine Line (SIBL) is a planned pipeline conveyance project initiated by Irvine Ranch Water District (IRWD) to convey the waste flows resulting from groundwater treatment systems for discharge directly to the ocean. The waste flows of the treatment systems will not exceed 1.5 mgd. The SIBL will extend southeasterly from the Irvine Desalter Project to an effluent disposal pump station at the IRWD Los Alisos Water Reclamation Plant (LAWRP). Connecting the SIBL to the sewer at the LAWRP enables IRWD to discharge brine via the South Orange

County Water Authority (SOCWA) outfall at Aliso Creek. This is an example of a single owner discharging flow to a system used by multiple agencies under a JPA organizational structure (the SOCWA-owned system). Figure 4.3 is a map of the SIBL system.

FIGURE 4.3 MAP OF SOUTH IRVINE BRINE LINE SYSTEM



Source: Irvine Desalter Project Brochure, 2008.

4.5 South Orange County Wastewater Agency

SOCWA is a JPA established in June 2001 that has no taxing authority. SOCWA was previously organized under the following legal entity names:

- Aliso Water Management District in 1974
- South East Reclamation Authority in 1970
- South Orange County Reclamation Authority in 1991

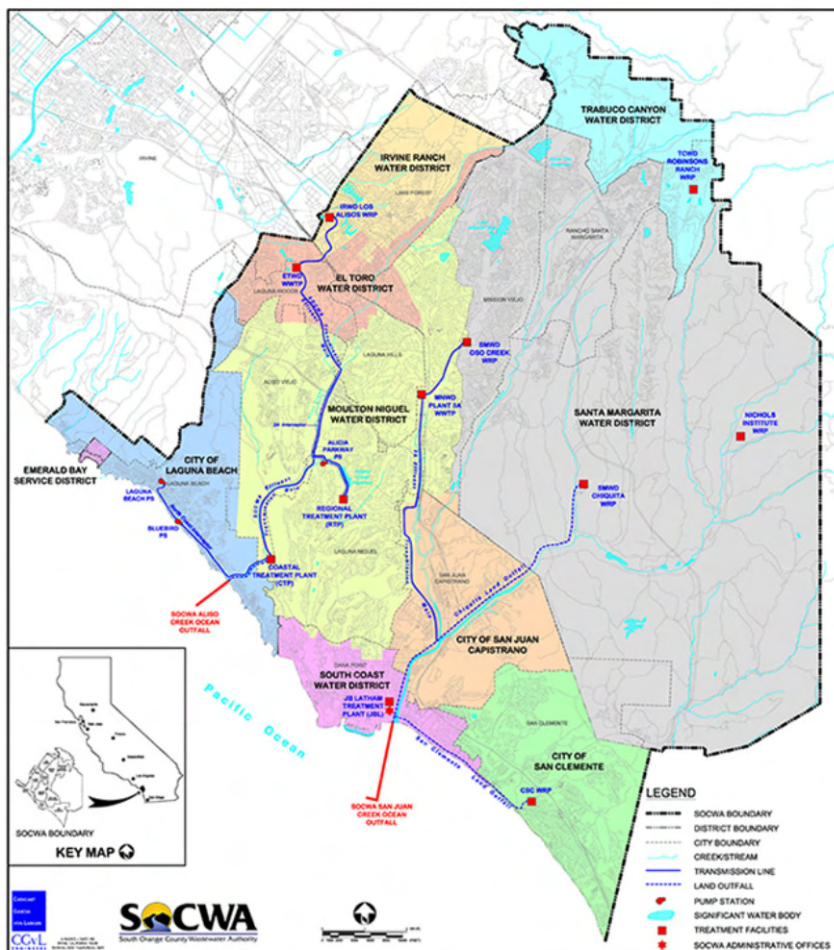
SOCWA was formed to “...Plan for, acquire, construct, maintain, repair, manage, operate and control facilities for the collection, transmission, treatment and disposal of wastewater, the reclamation and use of wastewater for beneficial purposes, and the production, transmission, storage and distribution of non-domestic water...” (South Orange County Wastewater Authority, 2007).

SOCWA consists of 10 member agencies:

- El Toro Water District
- Emerald Bay Service District
- Irvine Ranch Water District
- City of Laguna Beach
- Moulton Niguel Water District
- City of San Clemente
- South Coast Water District
- City of San Juan Capistrano
- Santa Margarita Water District
- Trabuco Canyon Water District

Figure 4.4 is a map of the SOCWA and includes the boundaries of its member agencies. These member agencies are each represented by one member on the SOCWA Board of Directors.

FIGURE 4.4 SOCWA MEMBER AGENCY BOUNDARIES



Source: South Orange County Wastewater Authority, 2007.

SOCWA owns and operates four treatment plants and two outfalls. The treatment plants are:

- Regional Treatment Plant
- Jay B. Latham Regional Treatment Plant
- Coastal Treatment Plant
- 3A Plant

SOCWA operates the Aliso Creek and San Juan Creek Ocean Outfalls and is the NPDES permit holder for these facilities. The Aliso Creek outfall has a design capacity of 50 mgd and currently conveys 21 mgd of treated effluent. The San Juan Creek outfall has a design capacity of 24-mgd gravity flow and 80-mgd pumped flow. The outfall currently has a flow of 19.1 mgd. In addition, SOCWA operates the effluent transmission main that conveys flows from member agencies to the SOCWA Aliso Creek outfall.

4.6 Orange County Sanitation District Outfall

The OCSD outfalls are located near the Santa Ana River. The outfalls discharge flow from the OCSD Plants 1 and 2 as well as brine-concentrate flows from the Groundwater Replenishment (GWR) System, Green Acres Project, and IRWD's Michelson WRP. OCSD owns and operates the outfalls and establishes contracts with upstream dischargers into the OCSD sewer system and SARI pipeline. This is an example of a single owner with contracts organizational structure.

4.7 South San Diego Bay Regional Brine Conveyance Facility

The San Diego County Water Authority, City of San Diego, Otay Water District, and Sweetwater Authority are completing a feasibility study of a south San Diego County regional brine conveyance system. One of the barriers in increasing groundwater development in San Diego County is concentrate management. The majority of groundwater in San Diego County is brackish and requires desalination to treat to potable use.

The regional concentrate conveyance facilities would involve the construction of a pipeline running north to south in southern San Diego County and discharge via the existing South Bay Ocean Outfall (SBOO). Both existing and planned groundwater desalination facilities in the region could utilize the proposed concentrate conveyance facilities. For existing facilities, this would potentially reduce or eliminate impacts and discharges resulting from current concentrate management practices. The project could also facilitate further groundwater development, maximizing the use of existing groundwater supplies.

The feasibility study will evaluate numerous aspects of developing a regional concentrate conveyance facility including: geographic regions to be served by the facility, potential alignments of the pipeline, existing and planned desalination facilities and industries that could utilize the discharge pipeline, pipeline capacity, pumping station size and location, environmental impacts and permitting issues, characteristics of concentrate blending with existing discharges in the SBOO, potential marine impacts from combined SBOO discharge, and capital and annual operating costs. Currently, the study portion of the project is being completed under a multiple-owner organization structure. One component of this study was to investigate potential organization structures (San Diego County Water Authority, 2008). However, construction of this project is not expected to begin until a consensus to proceed is reached amongst the local agencies.

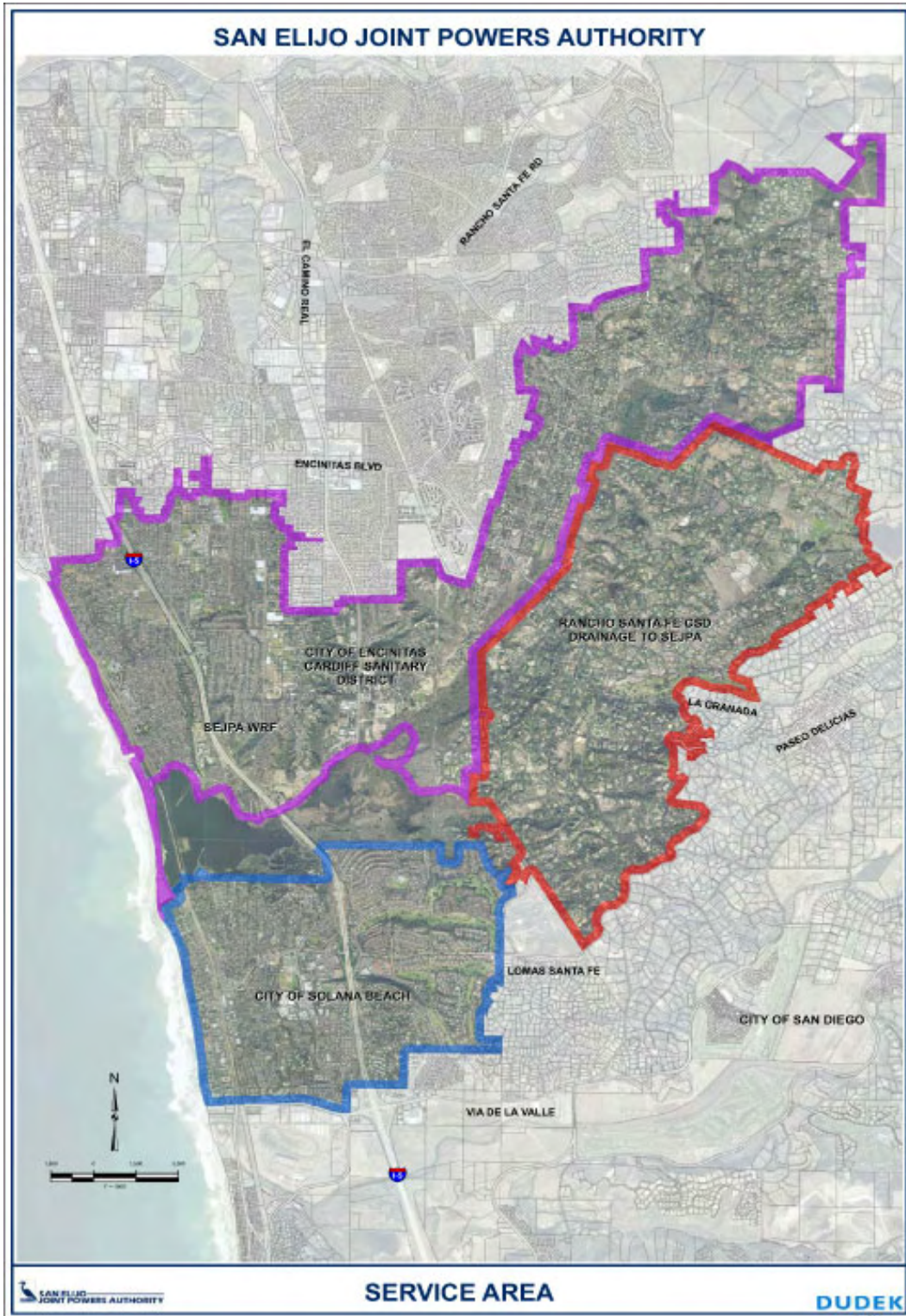
4.8 San Elijo Joint Powers Authority

The San Elijo Joint Powers Authority (SEJPA) governs and operates the San Elijo Water Reclamation Facility (SEWRF), which is a publicly owned wastewater treatment and water recycling facility responsible for collecting, treating, and safely disposing or recycling wastewater and its residuals for residents and businesses in the Solana Beach, Rancho Santa Fe, Olivenhain, and Cardiff communities. The plant is located in the City of Encinitas. The SEJPA is similar to public utilities that supply drinking water, natural gas, or electricity. Operation and maintenance revenues come from member agencies sanitation funds, outside services, and the sale of recycled water. SEJPA consists of the following member agencies:

- City of Solana Beach
- City of Encinitas

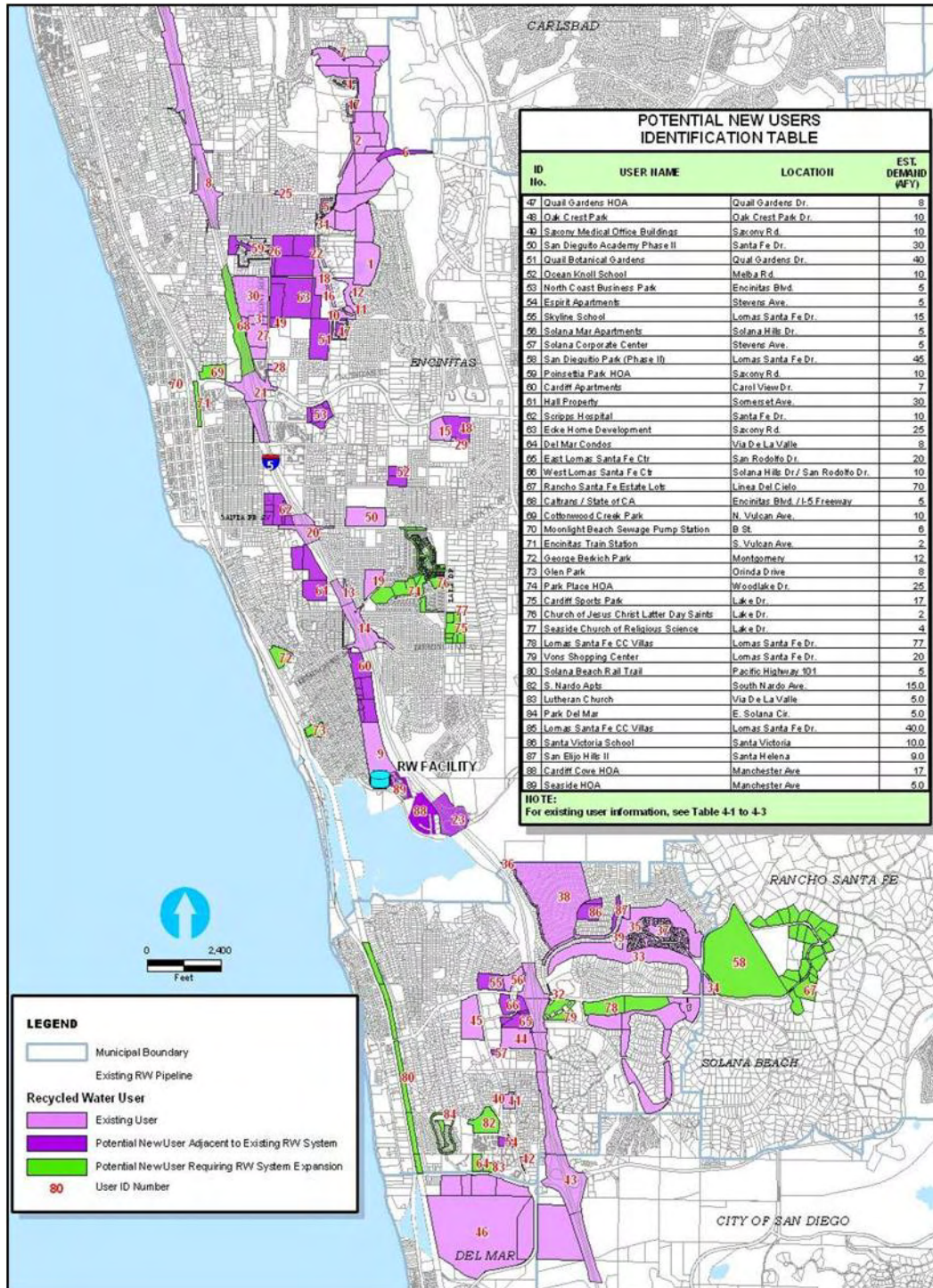
In addition to the SEWRF, the SEJPA owns and operates 17 miles of recycled water distribution pipelines and two recycled water reservoirs. SEJPA maintains nine wastewater lift stations and also co-owns the San Elijo Ocean Outfall with the City of Escondido. The ocean outfall is composed of 30-inch and 48-inch-diameter reinforced concrete pipe that extends 1.5 miles into the ocean. Two recycled water reservoirs with a capacity of 750,000 gallons each provide operational storage for the water reclamation program. Figures 4.5 and 4.6 illustrate the SEJPA wastewater and recycled water service areas respectively (San Elijo Joint Powers Authority, Undated).

FIGURE 4.5 SAN ELIJO JOINT POWERS AUTHORITY WASTEWATER SERVICE AREA



Source: San Elijo Joint Powers Authority, Undated.

FIGURE 4.6 SAN ELIJO JOINT POWERS AUTHORITY RECYCLED WATER SERVICE AREA



Source: San Elijo Joint Powers Authority, Undated.

4.9 Encina Wastewater Authority

The Encina Wastewater Authority (EWA) is a public agency located in Carlsbad, California. EWA provides wastewater treatment service to approximately 300,000 residents in northwestern San Diego County. (Encina Wastewater Authority, 2005). EWA is owned by six public agencies under a JPA. EWA consists of the following member agencies:

- City of Carlsbad
- City of Vista
- City of Encinitas
- Vallecitos Water District
- Buena Sanitation District
- Leucadia Wastewater District

Under this Agreement, these agencies agree to share in the costs and management of EWA to get more economical and high-tech facilities than they could get on their own. EWA is organized under the Joint Powers Act (California Government 6500 et seq). The Revised Establishment Document was adopted by the member agencies on December 17, 1990, to retain EWA as the operator/administrator of the Encina Joint Powers and to establish the organization, administration, and specific powers. The powers enumerated in the Revised Establishment Document are subject to restrictions of the County Water District Law (California Code 30000 et seq.). In addition, the Revised Establishment Document provides for the governance of EWA by two elected officials appointed to the EWA Board of Directors at the discretion of each member agency. The EWA also owns and operates a 1.5-mile-long ocean outfall pipeline that discharges secondary effluent. (Encina Wastewater Authority, 2005).

4.10 Oceanside Outfall

The City of Oceanside owns and operates the Oceanside Ocean Outfall under a single owner with contracts organizational structure. The outfall begins at the La Salina Wastewater Treatment Plant site just north of the mouth of Loma Alta Creek and extends southwesterly approximately 8,850 feet offshore.

The City of Oceanside's wastewater effluent from the San Luis Rey Wastewater Treatment Plant and the La Salina Wastewater Treatment Plant, and the brine from a groundwater purification facility are discharged into the ocean via the outfall pipeline. Additionally, effluent from Fallbrook Public Utilities District and Camp Pendleton discharges into the City's outfall.

These agencies have contracts with the City of Oceanside that enable them to discharge their wastewater flows. The ocean outfall was constructed in 1972 and is a 38-inch steel pipe with a 36-inch internal diameter (City of Oceanside, Undated).

4.11 Summary

Four organizational structures were discussed in this report; they are:

- Multiple owners
- JPA
- Single owner with contracts
- Single-owner special district

The type of arrangement selected for a specific project is dependent on:

- Project objective
- Project timing
- Financial capability of agencies
- Existing infrastructure
- Regulatory compliance issues
- Other potential factors

If project timing is critical, then a multiple agency arrangement might be the optimal solution because most participating agencies can move ahead with building system components while a detailed agreement is negotiated for O&M and regulatory compliance. A single owner with contracts also could be effective if the owning agency can fund the project prior to having user agreements in place.

If project financing is the critical factor affecting a project, then implementing a JPA or single-owner special district could be the optimal organizational structure. Both JPAs and special districts are able to use pooled funding capabilities to secure bonds based on multiple assessments or user fees paid to member agencies. The advantage of having multiple member agencies pool financing is that it enables each agency to take on lower risk and can result in reduced interest rates.

If regulatory or permitting compliance or enforcement is the driving issue for a project, then having a single entity responsible for a project is key. Implementing a JPA, a single owner with contracts, or a single-owner special district would provide a sole responsible party for regulatory and permit compliance and enforcement.

If a JPA or single-owner special district organizational structure is selected, then each member agency has a voice in decision making through the governing board. In a single owner with contracts, the owning agency is responsible, and it would control all decisions of compliance with permits and regulations.

Table 4.1 provides a summary of the different types of organizational structure and the advantages/disadvantages of each type. The table also lists examples of each type of organizational structure in southern California.

TABLE 4.1
 TYPES OF ORGANIZATIONAL STRUCTURES MATRIX

Type of Partnership	Advantages	Disadvantages	Examples
Multiple Owners	<ul style="list-style-type: none"> ✓ Each agency builds and owns its piece of the facility ✓ Each agency funds a portion of the system ✓ No agency is responsible for entire system 	<ul style="list-style-type: none"> ✗ Requires high level of cooperation and detailed agreement regarding O&M cost-sharing, and regulatory compliance ✗ Downstream portions of system have to be designed to convey upstream flows and may be responsible for permitting or regulatory compliance even with no control of upstream users discharges ✗ No single agency responsible for system but one agency may have permitting/regulatory compliance responsibility ✗ No single agency responsible for funding entire system 	<ul style="list-style-type: none"> ★ City of Los Angeles/West Basin MWD Reuse/Brine Agreements
Joint Powers Authority	<ul style="list-style-type: none"> ✓ Provides a broad array of financial options for member agencies ✓ Costs are shared between agencies ✓ Allows for inclusion of new agency partners ✓ Can ease financing and lower finance costs ✓ Proven and effective mechanism ✓ Allows member agencies benefit of exercising powers of another agency 	<ul style="list-style-type: none"> ✗ Takes time and effort to develop ✗ Higher administrative costs 	<ul style="list-style-type: none"> ★ SEJPA/EWA ★ SOCWA ★ SAWPA/SARI ★ IRWD SIBL

TABLE 4.1
 TYPES OF ORGANIZATIONAL STRUCTURES MATRIX

Type of Partnership	Advantages	Disadvantages	Examples
Single Owner with Contracts	<ul style="list-style-type: none"> ✓ Owner controls the construction and operation of the facility ✓ Cost shared through contracts with other agencies ✓ Allows different user types (such as public and private) 	<ul style="list-style-type: none"> ✗ Costs for construction funded by single agency ✗ Owning agency responsible for water quality or discharge ✗ Users have limited decision making in system O&M and regulatory compliance ✗ Owner controls access or use of system 	<ul style="list-style-type: none"> ★ City of San Diego MWWD ★ OCSD Outfall ★ Oceanside Ocean Outfall ★ IRWD Wastewater/Brine Disposal System
Single-Owner Special District	<ul style="list-style-type: none"> ✓ Ease and speed of implementation ✓ One owner controls the construction and operation of the facility ✓ Regulatory enforcement and compliance are responsibility of owning agency ✓ Can ease risks and/or lower financing costs 	<ul style="list-style-type: none"> ✗ Requires membership in special district ✗ Limits flexibility for different user types ✗ Owner controls access to system 	<ul style="list-style-type: none"> ★ Calleguas MWD ★ MWDSC

5 References

Calleguas Municipal Water District. 2009. *Calleguas Regional Salinity Management Pipeline*. <http://www.calleguas.com/projects/crsmpbroc.pdf>. Accessed January 2009.

City of Oceanside. 2009. General Information. <http://www.ci.oceanside.ca.us>. Accessed January 2009.

Encina Wastewater Authority. 2005. General Information. <http://www.encinajpa.com>. Accessed January 2009.

Irvine Ranch Water District. 2009. *Irvine Desalter Project*. http://www.irwd.com/FreePrograms/brochures/G06_IDP_2008_Brochure.pdf. Accessed January 2009.

Mizany, Kimia and April Manatt. 2002. *What's So Special About Special Districts? A Citizen's Guide to Special Districts in California (Third Edition)*. California Water Plan Update. February.

San Diego County Water Authority. 2008. *San Diego Regional Concentrate Conveyance System – Draft Technical Memorandum*. June.

San Elijo Joint Powers Authority. 2009. General Information. <http://www.sejpa.org>. Accessed January 2009.

Santa Ana Watershed Project Authority. 2002. *Upper Santa Ana Regional Interceptor (SARI) Planning Study*. December.

Senate Local Government Committee. 2006. *Special District Fact Sheet*. http://www.northtrinitylake.com/tccsd/SD_factsheet2006.pdf. July.

South Orange County Wastewater Authority. 2007. General Information. <http://www.socwa.com>. Accessed January 2009.

Stava, Jeff, Guthner Nossaman, and Knox & Elliott, LLP. 2006. "Joint powers authorities: their uses and abuses." *Money Matters*. November-December.

