

**METROPOLITAN WATER DISTRICT  
OF  
SOUTHERN CALIFORNIA**

**INTEGRATED RESOURCES PLAN ASSEMBLY**

**ASSEMBLY STATEMENT**

**San Pedro, California  
June 9-11, 1994**

**METROPOLITAN WATER DISTRICT  
OF  
SOUTHERN CALIFORNIA**

**INTEGRATED RESOURCES PLAN ASSEMBLY**

**ASSEMBLY STATEMENT**

At the close of their discussion, the participants of this Assembly reviewed and adopted as a group the following statement. The statement represents general agreement. However, no one was asked to sign it. Furthermore, it should not be assumed that every participant subscribes to every recommendation.

**I. INTRODUCTION**

This paper presents the conclusions reached at an American Assembly on the Integrated Resources Plan for Southern California. The Assembly was convened on June 9-11, 1994, at the Doubletree Hotel in San Pedro. (An overview of the Assembly procedures is provided in Appendix 1.) Over one hundred people attended, excluding Assembly staff and observers. Participants included members of the Board of Directors of the Metropolitan Water District of Southern California (Metropolitan), Metropolitan's Member Agency managers, Metropolitan senior staff, groundwater agency managers, and representatives of retail subagencies that purchase water from Member Agencies. (A list of Assembly participants is provided in Appendix 2.)

The Integrated Resources Plan Assembly was a follow-up to an October 1993 Assembly on Metropolitan's Strategic Plan. The 1993 Assembly dealt with such fundamental issues as regional water policies, financing structures, and governance, and provided direction for a number of Metropolitan's actions, including adoption of a foundation for a new revenue structure, selection of criteria for resource evaluation, and formulation of initial business practices and water management principles. (A glossary of terms is provided in Appendix 3).

The June 1994 Assembly focused on strategies for meeting the water needs of Metropolitan's service area through the year 2020. Alternative strategies were delineated

through an Integrated Resources Planning (IRP) process. IRP is a technical methodology for forecasting needs, assessing alternative supply options against explicit standards, and choosing among different supply combinations.

The main questions the Assembly addressed were which resource mix to emphasize, and how to implement it.

## **II. SOUTHERN CALIFORNIA'S WATER SUPPLY CHALLENGE**

Southern California's water community is at a critical time in its history as a steward of water resources. The region faces a growing gap between its water requirements and its firm supplies. Increased environmental regulations and the attendant competition for water from outside the region have resulted in reduced supplies of imported water. At the same time, demand is rising within the region because of continued population growth. Shortages during 1991 highlighted the seriousness of the problem.

The water used in Southern California comes from a number of sources. About one-third of it is found locally. The rest of the region's water is imported from three sources -- the Colorado River, the Sacramento-San Joaquin River Delta, and the Owens Valley and Mono Basin (through the Los Angeles Aqueducts). The ability of Southern California to secure the same amount of imported water, much less a greater amount, is in question.

The region's population is forecast to increase from the current 15.7 million to about 19.5 million by year 2010, and to 21.5 million by year 2020. At present, between 195 and 215 gallons of water are consumed daily for municipal and industrial uses for every person living in Southern California. Since the 1970s, the total regional water demand in Metropolitan's 5,139 square mile service area has increased from about 2.8 million acre-feet per year to about 3.5 million acre-feet per year in 1993. Based on normal conditions and full implementation of water conservation measures, it is expected that regional demands will increase to just over 4.5 million acre-feet by year 2010, and to just over 5.0 million acre-feet by year 2020. During very hot and dry years, demands could be as high as 4.9 million acre-feet in 2010, and 5.6 million acre-feet in year 2020.

The delivery of water to Southern California water consumers has been nearly 100 percent reliable in the past. However, as existing firm water supplies continue to decrease, future reliability is uncertain. Even with a 15 percent reduction in demand due to full implementation of conservation measures, the reliability of water deliveries during a drought could fall to 50 percent by year 2000 without any additional water supply investments or improvements. This would mean that there would be some type of shortage, on average, every other year, and rationing in many of these years.

### **III. THE IRP PROCESS**

The agency that has traditionally had the lead role for meeting the region's supplemental imported water needs is Metropolitan, a special district created in 1928 under State enabling legislation. Metropolitan, through its staff, carries out many duties in connection with securing, storing, distributing, treating, and financing water under Board policy for the region. It is a confederation of 27 Member Agencies which purchase wholesale water from Metropolitan, handle sub-regional distribution, and resell the water to other suppliers or directly to consumers. The decisions of Metropolitan are made by a 51 member Board of Directors appointed by their Member Agencies. The Directors are accountable to their appointing authorities, most of whom are elected officials.

During the past two decades, Metropolitan has broadened its role not just to function as a supplier of imported water, but also to play a part in region-wide water management. Metropolitan has used financial incentives and other means to encourage its Member Agencies to develop alternative water supplies and to become less dependent on Metropolitan for water supplies. On their own and in response to Metropolitan's incentives, Member Agencies have developed additional groundwater resources, promoted conservation, developed water reclamation projects, and supported Metropolitan at the State and federal level to improve imported supplies.

The IRP process was initiated to give the region as a whole the opportunity to examine its water supply needs and options. The IRP process identified resource mixes that could meet all of the wholesale water demands of Metropolitan's Member Agencies, except during the most severe droughts. At those times, say one year in 50, Metropolitan would deliver no less than 80 percent of the imported water needed to meet wholesale demands within its service area, with the difference made up by rationing or voluntary conservation measures.

The IRP process was designed to be open and participatory. Member Agencies and groundwater agencies were actively involved in reviewing the methodology and results and in establishing a technical framework. Also, acting on one of the recommendations from the 1993 Assembly, three open forums and three local agency workshops were held throughout Southern California to review options and obtain input. Forum and workshop participants presented recommendations to the Integrated Resource Plan Assembly on the evening of June 9, the night preceding the Assembly discussion process.

### **IV. RESOURCE MIX FROM A REGIONAL PERSPECTIVE**

The question posed by the IRP was where to put the emphasis along a continuum that covers three basic resource-mix alternatives. At one end of the continuum is the strategy of enhancing local supplies, through very aggressive water reclamation, groundwater development, ocean desalination, and conservation beyond the current Best Management Practices (BMPs).

At the other end is securing existing entitlements and additional imported water supplies through Delta improvements and south-of-Delta storage. Between these extremes is the strategy of balancing local and imported supplies, and storing seasonally available imported water in surface reservoirs and groundwater basins for use later during droughts and periods of high demand (a method referred to as "conjunctive use").

Each IRP mix assumed that water conservation would be implemented aggressively in the region through BMPs, and that Metropolitan would use, at least to some extent, all available strategies.

A. The Assembly participants agreed that the best resource combination for the region is an intermediate mix. Some stated that this mix should lean toward cost-effective local water development. All three of the alternative resource mixes have similar costs over the next ten years (the cost estimates diverge substantially beyond that), and all three meet the reliability goal. But an intermediate mix provides the greatest diversity, adaptability, and flexibility.

B. However, in endorsing an intermediate mix, the participants are supporting a general direction, not all of the specific items and goals included in the IRP analysis. Maintaining an appropriate mix which meets the reliability goal is a dynamic process requiring regular evaluation. The following list is a set of suggested parameters:

1. Local supplies should be pursued to the point of technical and economic feasibility. The region should make full use of economically and environmentally feasible local water supplies (such as groundwater, reclamation, and desalination) as long as these are coupled with maintaining and enhancing a dependable supply from the State Water Project (SWP).

2. Dependable supplies from the SWP have the potential to be highly economical and because of water quality considerations, are essential for successful implementation of local reclamation and groundwater storage programs.

3. The Domenigoni Valley Reservoir Project, the Inland Feeder, and groundwater and other local storage all work together to meet overall water supply, emergency storage, and water quality needs.

4. Supplies from the Colorado River Aqueduct should be maximized, but steps should be taken to address water quality impacts on local water resources development.

C. Primary emphasis on either local resources or imported supplies has a number of disadvantages. While heavy reliance on local resources might demonstrate that Southern California is trying to solve its own problems in a responsible way, a resource mix exclusively emphasizing local resources would:

1. Pose potential water quality problems. Without substantial imported water to replenish local groundwater basins, high total dissolved solids (TDS) in the Colorado River supplies used for replenishment will cause degradation of groundwater. In addition, high TDS limits the development of water reclamation. These problems could be addressed with desalination, but desalination is costly and creates environmental impacts.

2. Create problems of parochialism, particularly during droughts. To the extent that local resources are unavailable to meet regional needs, conflicts will occur during shortages between those that have direct access to local resources and those that do not.

D. The main problem associated with heavy reliance on imported water is political and environmental risk. It is uncertain whether a resource mix exclusively emphasizing imported supplies would allow Metropolitan to meet its reliability goal. Due to the political and environmental risk, it is unlikely that progress in the Delta can be made without substantial commitment to local resource development and environmental protection.

E. Participants agree that all of the common regional resource requirements should be pursued, including construction of the Domenigoni Valley Reservoir Project and the Inland Feeder. However, a few participants are concerned that the Domenigoni Valley Reservoir Project is not as cost-effective as competing resources and may not benefit all equitably. The common regional resource requirements are:

1. **Urban Water Conservation.** It is recommended that by 1996, all water agencies, private water companies, cities, and other units of local government having water resource management responsibilities in Southern California become signatories to, and implement, the "Memorandum of Understanding Regarding Urban Water Conservation in California." It is estimated that the region has conserved about 250,000 acre-feet per year (AFY) during 1980 to 1990 as a result of public education, residential and commercial plumbing codes, and plumbing retrofits of shower heads and toilets. The regional objective should be at least 750,000 AFY by

the year 2010 as a result of fully implementing the Urban Water Conservation Best Management Practices.

**2. Water Reclamation.** Currently, the region is using about 250,000 AFY of reclaimed water for indirect uses such as groundwater replenishment, and direct uses such as landscape irrigation. The regional requirement should be at least 505,000 AFY by the year 2010, a two-fold increase in 15 years.

**3. Groundwater Recovery and Treatment.** Currently, at least 10,000 AFY of brackish/contaminated groundwater is being recovered in the region in order to increase annual groundwater production. The regional requirement should be at least 50,000 AFY by the year 2010, a five-fold increase in 15 years.

**4. Groundwater and Surface Storage.** The recommended regional requirement for groundwater storage is expansion of current conjunctive management of local and imported water supplies to develop at least 300,000 AFY of additional annual production and 1,000,000 AFY of additional storage by year 2010.

The Domenigoni Valley Reservoir Project and Inland Feeder should be established as critically needed projects for Southern California to provide emergency, seasonal, and drought storage. In addition, periodic reports should be prepared documenting the status of Member Agency and subagency abilities to meet the emergency needs resulting from a seven-day Metropolitan outage.

**5. Colorado River.** Water transfers, water conservation, water quality enhancement, groundwater storage programs, in-river storage agreements, and available surplus and unused water should be pursued to increase the reliability of Colorado River supplies and provide full aqueduct delivery. Promote the creation and maintenance of a Lower Basin coalition to actively support a multi-species habitat conservation and protection program.

**6. State Water Project.** Southern California water agencies should develop programs to conjunctively manage their supplies from the SWP to increase use of supplies in time of surplus, and reduce the need for direct deliveries from the SWP during droughts or periods when significant impacts on fisheries could result. The first priority is to fully utilize storage of imported supplies in Southern California. Conjunctive use

programs should include developing cooperative SWP banking programs outside of the Southern California region as well. Southern California water agencies should commit to creating, maintaining, and strengthening broad-based coalitions and actively support a multi-species habitat conservation and protection program for the Delta.

7. **Water Transfers.** Because water transfers play such a critical role in meeting regional reliability, Southern California water agencies should commit to the establishment of a fully functional and efficient water market for the voluntary transfer of water between willing buyers and sellers. The recommended regional requirement for water transfers should be at least 300,000 AFY available by year 2010. Further evaluations are needed to determine the optimal strategies for using water transfers for consumptive and storage replenishment needs.

8. **Desalination.** Southern California currently invests in desalination of brackish groundwater. The region should support pilot programs to develop cost-effective ocean desalination technology and its applications.

F. The resource requirements described above are intended to provide a foundation for further analysis aimed at defining optimal goals and facilities for a comprehensive regional water resources plan.

G. Metropolitan should make sure that regional expenditures produce regional benefits. Metropolitan should also evaluate its current programs of technical and financial assistance to local agencies to assure that financial burdens and regional benefits are equitably balanced.

## **V. MEMBER AGENCY EQUITY**

The participants generally recognized that an intermediate mix provides the greatest benefits to the largest number of Member Agencies. While an intermediate mix is preferable for the region as a whole, it has the potential, unless its financing and management are carefully structured, to create a number of serious inequities. Metropolitan is addressing many of these issues with its new rate structure, but there are underlying and differing concerns that this rate structure is not achieving necessary equity, and this may become more troublesome as the IRP and its associated capital program are implemented. The issues need to be addressed before closure is reached on the financial program required to implement the IRP.



A. Regional funding of programs to develop local water resources poses a challenge when trying to determine costs and benefits. On the one hand, when funding is coming from a regional source, the expectation is that a commensurate regional benefit should be produced. On the other hand, when local resources are developed solely with local expenditures, there should be no regional obligation.

B. Some Member Agencies have made investments in the past based on existing Metropolitan policies and financial incentive programs, but now these policies and programs are potentially changing. There is concern that these agencies should be able to depend on a consistent policy and that Metropolitan should honor all current contracts.

C. As an intermediate mix is refined and implemented, methods must be developed to assure that all Member Agencies and subagencies implement BMPs. All of the alternative resource mixes assumed that BMPs would be widely used, but the voluntary nature of the BMP program weakens its effectiveness in the region. Clear consequences for nonparticipation, including financial disincentives, should be established.

D. One of the essential ingredients to equity is a strong drought management plan. Metropolitan must have the political will to implement its policies. The drought management plan must assure that conservation is rewarded and not penalized. The equitability of providing regional incentives for local resource development is realized in a drought when the local water is produced for regional benefit.

## **VI. BALANCING REGIONAL BENEFITS AND MEMBER AGENCY EQUITY**

In developing an IRP, the real questions facing the region are "What to do?" and "How to do it?" The advantages of an intermediate mix and the need to move forward on the common regional resource requirements are rather obvious. The problem, though, is doing so in a way that shares costs equitably, protects the viability of both Metropolitan and the Member Agencies, takes into account past investments by Member Agencies, and provides for both predictability and flexibility.

A. While some participants felt that the reliability goal might be low, the Assembly participants endorsed the reliability goal set by Metropolitan as a reasonable balance between cost and level of service. The participants also agreed that the goal should be periodically re-evaluated.

B. However, several aspects of the goal need to be kept in mind:

1. Metropolitan is setting the goal at the wholesale level, in the sense that the goal reflects Metropolitan providing supplemental water to Member Agencies. However, the actual level of reliability at the retail level could vary substantially, depending on the extent to which local resources are shared regionally. Regional sharing of local resources could reduce differences in local retail reliability.

2. The goal does not address how Metropolitan will deal with the critical issue of resource allocation during droughts. This issue has implications both for public perceptions of the reliability goal and for how the burden will be shared.

C. Metropolitan should develop an explicit policy on wheeling. The policy should state the criteria under which wheeling is allowed.

D. The following steps should be taken to promote regional equity:

1. Metropolitan and its Member Agencies must develop a drought management plan. In addition to being consistently enforced, the plan should address:

a. How regional investments in local resources are to be shared;

b. When supplies will be interrupted; and

c. How limited imported supplies will be allocated.

2. Consideration should also be given to developing policies on:

a. Recognizing Member Agencies' past investments to develop their local resources;

b. Resolving the issue of preferential rights in light of current financial policy; and

c. Requiring the adoption and implementation of BMPs throughout the region.

## VII. FINANCING AND IMPLEMENTATION

A. A variety of strategies should be pursued to finance and implement an intermediate resource mix. These strategies should uphold the following business principles.

1. **Financial Integrity.** Investments by Metropolitan, Member Agencies, and other water providers that are consistent with the IRP process should be accompanied by a mutual commitment of reliable revenue sources that recover the fixed and nonvariable operational and capital costs of those investments.

**Discussion:** Ensuring reliable revenue sources is critical to maintaining Metropolitan's currently high bond rating. This does not require that Metropolitan cover 100 percent of fixed costs with fixed revenues. The revenue stream should be diversified and include alternative fixed sources.

2. **Fairness.** Metropolitan should provide comparable access to reliable water service to each of its Member Agencies, recognizing that all Member Agencies have a beneficial interest in Metropolitan's system and investments.

**Discussion:** This principle is particularly important to drought management. It implies that mutual benefit to the region, rather than local ownership, should have higher consideration when ensuring each of the Member Agencies comparable access to reliable and quality water service.

3. **Equity and Value.** Metropolitan's fees and charges for the delivery of water service should be set in a manner that establishes a clear and proportionate relationship between the cost of service to Member Agencies and the value of the benefits that are provided to them by Metropolitan. A clear connection must be established between the financial incentives and the benefit to the region, and Metropolitan must have the ability to assure that the benefit is delivered.

**Discussion:** In order to maintain a clear connection between the financial incentives and the benefit to the region, Metropolitan should establish performance requirements that are flexible enough to allow Member Agencies to meet their

obligations. In addition, these incentives should be market-driven. The consequences of non-performance should be clear.

Consistent behavior by Metropolitan is critical for local resource development.

**4. Operating Integrity.** The operating integrity of Metropolitan's system should be maintained. The use of Metropolitan's system for the transmission of non-Metropolitan water supplies (wheeling) should be provided as long as there is no reduction in the level of service, including water quality and capacity, to any Member Agency, and wheeling must not negatively impact the rates or charges to any other Member Agencies.

B. The following regional water management principles should be upheld in a manner consistent with the business principles outlined above.

**1. Water Conservation.** Water conservation is a priority in any resource strategy developed for Southern California. All governmental agencies, private industry, and the public have a stewardship responsibility for the wise and efficient use of water. In that context, all water agencies, private water companies, cities, and other units of local government having water resource management responsibilities in Southern California share a responsibility to implement the Urban Water Conservation BMPs.

**Discussion:** This principle should be the foundation of an intermediate resource mix. BMPs should be supported with effective incentives and disincentives to encourage implementation by all Member Agencies. Legislative initiatives also should be considered to ensure implementation of BMPs.

**2. Water Reclamation.** To fully maximize the benefits of available water supplies, beneficial reuse of imported and local water is a critical priority. Metropolitan and other water agencies in Southern California must take active steps to support and encourage implementing water reclamation projects. These steps should include seeking legislation which facilitates water reclamation activities. The goal is to develop water reclamation supplies throughout the region and thereby increase the efficient use of available water.

**3. Groundwater Recovery.** Recovery and management of degraded groundwater is a developing supply strategy and should

continue to be encouraged to improve utilization of aquifers. Unified management strategies should be encouraged locally and statewide.

**4. Groundwater Storage.** For much of Southern California, groundwater basins are the foundation of the local water delivery system. Historically, groundwater supplies were the only supply for many communities, and today they serve as the transmission "pipeline" and storage reservoir for a significant portion of the imported supplies delivered to the region. The groundwater basins should be managed conjunctively with the available imported water supplies to provide regional storage benefits, including seasonal (or peaking management) regulation, drought and emergency supplies. Given that storage of imported supplies in groundwater basins is critical to providing emergency and drought storage benefits on a regional basis, all communities that overlie a groundwater basin have a responsibility to participate in mutually beneficial programs to achieve coordinated management of groundwater and other sources of supply. By the same token, the economic value of groundwater storage should be recognized.

**5. Surface Storage Development.** Metropolitan has a responsibility to provide regional surface storage and conveyance facilities sufficient to meet operational storage, emergency, seasonal regulation, and drought storage requirements, as well as improved use of groundwater basins for storage. Member Agencies and subagencies are responsible for providing the local emergency storage or interconnections with other agencies needed to meet their needs during a seven-day Metropolitan service outage.

**6. Colorado River.** Maintaining a full Colorado River Aqueduct and addressing associated water quality issues is of paramount importance, both short-term and long-term. Implementation of innovative water conservation, conjunctive use, and land fallowing programs with Imperial, Coachella, and Palo Verde irrigation districts, any entities which have entitlements to Colorado River water, and the federal government will continue to be a high priority. In addition, developing cooperative arrangements with Nevada and Arizona water agencies will become increasingly important to optimize utilization of the Lower Basin's apportionment.

**7. State Water Project.** Realizing that Metropolitan's SWP entitlement is also important, a critical issue facing California is managing the Sacramento-San Joaquin River Delta estuary in a manner that can preserve the environmental resources and balance the multiple uses of its water resources. Southern California should actively support a federal/State policy framework for protecting the Delta through water quality standards and implementation of a long-term management program that balances all the uses of the Delta's water resources, minimizes harm to fisheries, and allows for water transfers.

**8. Water Transfers.** Water marketing and voluntary transfers should continue to be promoted and implemented in a manner that protects the environment, local rural communities, and other interests. Water transfers in California should be accomplished with a commitment to efficient use of existing supplies.

**9. Desalination and Demineralization.** Desalination is relatively expensive but may be an important water supply strategy in the 21st century. The region should support forward-looking demonstration projects to evaluate the "true" costs and benefits of emerging ocean desalination technologies. These demonstration projects should be cooperative research and development programs with the State and federal governments, electric utilities and water agencies.

C. A specific resources program should be developed out of the IRP in accordance with the business principles, and support from the community should be sought. Ongoing public information and outreach programs are vital to the IRP process, particularly when any rate increases are required, but great care must be taken when spending money for this purpose. Local, State, and federal officials should all be involved in informing the public. Public information should focus on the need to conserve water resources and the need for increased reliability.

D. New governing structures are not needed to implement the IRP. All water agencies, private water companies, cities, and other units of local government having water resource management responsibilities in Southern California should work cooperatively to meet its objectives, and Metropolitan should function as the facilitator and coordinator of this process. Interagency agreements, contracts, and memoranda of understanding are tools that can be used to ensure implementation.

## OVERVIEW OF THE INTEGRATED RESOURCES PLAN ASSEMBLY

The Integrated Resources Plan Assembly brought together 103 water leaders who were members of Metropolitan's Board of Directors, Member Agencies, Metropolitan senior staff, groundwater agency managers, and representatives of retail subagencies that purchase water from Member Agencies to focus on strategies delineated through the IRP process for meeting the water needs of Metropolitan's service area through the year 2020. The main questions addressed were Metropolitan's reliability goal, which resource mix to emphasize in the IRP, and how to implement it.

The format for the Integrated Resources Plan Assembly was based on the American Assembly process, which is a procedure designed to reach consensus on controversial and complex issues of interest to diverse parties. The American Assembly started with President Eisenhower at Columbia University in the 1950s.

Central to the success of the Integrated Resources Plan Assembly was the Steering Committee composed of representatives of constituency groups participating in the Assembly. The Steering Committee members for the Assembly included the following: Metropolitan Board Members -- Charles D. Barker, James H. Blake, Alf W. Brandt, Timothy F. Brick, Christine M. Frahm, Ted Grandsen, Bill Hill, Lois B. Krieger; Member Agency Managers -- Richard W. Atwater, Gerald A. Gewe, Donald L. Harriger, Donald R. Kendall, Lester A. Snow, Stanley E. Sprague; and Metropolitan Management -- John R. Wodraska, Duane L. Georgeson, F. Wiley Horne, Debra C. Man, Edward C. Means, and Tim Quinn. The Steering Committee was responsible for planning and coordinating the Assembly. The key issue questions considered by the Assembly participants were developed by the Steering Committee. Metropolitan staff and a private consultant developed background papers that were reviewed, modified, and approved by the Steering Committee. The background papers provided Assembly participants with information essential to understanding the key issues and alternative strategies for addressing the key issues.

During the evening of first day of the Assembly, Metropolitan staff provided a background session on its IRP process. In addition, presentations were made by the reporters from the three open forums and three local agency workshops which were held throughout Southern California to review options and obtain input on the IRP process. On the second day of the Assembly, the Assembly participants, divided into six working groups, considered the key issue questions and developed positions and recommendations. Each working group had a preassigned facilitator and recorder. At the end of the second day, the facilitators and recorders met to construct the draft Assembly Statement which was based on the positions and recommendations of the working groups. On third day of the Assembly, the draft Assembly Statement was reviewed by all participants, and the full Assembly, led by the Assembly facilitator, Dr. Lance deHaven-Smith, worked through the document. Revisions and/or changes to specific wording in the document were made by the full Assembly, and agreement was reached at that time on specific language that was adopted in the Assembly Statement.

## ASSEMBLY PARTICIPANTS

<u>Name of Participant</u>	<u>Affiliated Agency</u>
Alario, Edward	City of Anaheim
Arakawa, Steve N.	MWDSC
Arant, Gary	Valley Center MWD
Atwater, Richard W.	Central/West Basin MWD
Bangham, Bill	Raymond Basin Management Board
Bannister, Wesley M.	MWDSC Director, MWDOC
Barker, Charles D.	MWDSC Director, West Basin MWD
Becker, Bert H.	MWDSC
Beuhler, Mark D.	MWDSC
Blake, James H.,	MWDSC Director, City of Fullerton
Blevins, Melvin L.	LADWP
Boen, Doyle F.	MWDSC Director, Eastern MWD
Brick, Timothy F.	MWDSC Director, City of Pasadena
Colbaugh, Jim	Las Virgenes MWD
Cook, Hunter T.	Coastal MWD
Corley, Ray E.	MWDSC
Deaton, Ron	City of Los Angeles
Dorff, Karen E.	MWDSC
Drake, Michael S.	City of San Fernando
Ferguson, David	City of Long Beach
Foley, John V.	MWDSC Director, MWDOC
Frahm, Christine M.	MWDSC Director, SDCWA
Frei, Jim	La Habra Heights County Water Agency
French, Dwight F.	MWDSC Director, Chino Basin MWD
Froelich, Donald	City of Glendale
Georgeson, Duane L.	MWDSC
Gewe, Gerald	LADWP
Glancy, Jim	City of Lakewood
Grandsen, Ted	MWDSC Director, Calleguas MWD
Griffen, Harry,	MWDSC Director, SDCWA
Gutierrez, Mike	Southern California Water Company
Harriger, Donald L.	Western MWD of Riverside County
Harry, Lee J.	MWDSC Director, City of Santa Ana
Hazel, Gary J.	MWDSC
Hennigar, John F.	Rancho California Water District (EMWD)
Hill, Bill M.	MWDSC Director, Chino Basin MWD
Hoagland, John E.	Elsinore Valley MWD
Hogan, Steve	City of San Diego
Horne, Wiley F.	MWDSC
Ibbetson, E. Thornton	MWDSC Director, Central Basin MWD
Ivey, Gilbert F.	MWDSC
Kazarian, Bob	MWDSC Director, City of Anaheim



## ASSEMBLY PARTICIPANTS (CON'T)

<u>Name of Participant</u>	<u>Affiliated Agency</u>
Kemp, Karl	Mesa Consolidated Water District
Kendall, Donald R.	Calleguas MWD
Kennedy, Ronald	El Toro Water District
King, Jerry A.	MWDSC Director, MWDOC
Krauel, Francesca M.	MWDSC Director, SDCWA
Krieger, Lois B.	MWDSC Director, West. MWD of Riverside Co.
Lewinger, Keith	Otay Water District
Lindhout, Linzey	MWDSC
Little, Edward C.	MWDSC Director, West Basin MWD
Magoffin, Linn	Main San Gabriel Basin Watermaster
Malburg, Leonis C.	MWDSC Director, Central Basin MWD
Malinowski, Jay W.	MWDSC
Man, Debra C.	MWDSC
Marott, Janet E.	MWDSC
Mason, Dale	MWDSC Director, SDCWA
McMurray, Wayne T.	MWDSC Director, Coastal MWD
Means, Edward G.	MWDSC
Meyer, Henry J.	MWDSC Director, City of Long Beach
Miller, Patrick H.	MWDSC Director, Calleguas MWD
Mills Jr., Milon	City of San Diego
Mills, William R. Jr.	Orange County Water District
Milne, Bruce J.	MWDSC Director, Three Valleys MWD
Moret, Katherine W.	MWDSC Director, LADWP
Morris, John T.	MWDSC Director, Calif-American Water Co., San Marino
Morse, Gary A.	MWDSC Director, Central Basin MWD
Mundy, John	City of Santa Monica
Mylne, John M., III	MWDSC Director, West. MWD of Riverside Co.
Norman, John W.	Water Replenishment District of So. Calif.
O'Neil, William T.	MWDSC Director, Foothill MWD
Osborne, Wayne S.	City of Fountain Valley
Palmer, Ronald C.	Foothill MWD
Parker, Joseph	MWDSC Director, SDCWA
Peterson, Glen D.	MWDSC Director, Las Virgenes MWD
Quinn, Timothy	MWDSC
Reed, Christine E.	MWDSC Director, City of Santa Monica
Schaich, Chuck	City of Torrance
Schempp, Robert	MWDSC
Shollenberger, Thomas E.	Cucamonga County Water District
Snow, Lester	SDCWA
Snyder, Gary M.	MWDSC
Soltz, Roberta M.	MWDSC

## ASSEMBLY PARTICIPANTS (CON'T)

<u>Name of Participant</u>	<u>Affiliated Agency</u>
Sprague, Stanley E.	MWDOC
Stamper, Larry L.	MWDSC Director, City of Burbank
Stassi, Ronald V.	City of Burbank
Stuart, Charles L.	MWDSC Director, West Basin MWD
Tamble, Terry	California Water Service Company
Taylor, Greg	MWDSC
Thomas, Brian G.	MWDSC
Underbrink, Tom	City of Pasadena
Watton, Mark W.	MWDSC Director, SDCWA
Wein, George	MWDSC Director, LADWP
Westdyke, Robert G.	Chino Basin MWD
Wickser, Jim	LADWP
Witt, Kenneth H.	MWDSC Director, MWDOC
Wodraska, John R.	MWDSC General Manager
Wong, Benjamin	City of Oxnard
Worley, Tim	Three Valleys MWD
Wright, Bill	MWDSC Director, City of Torrance
Wysbeek, Doude	MWDSC Director, City of San Fernando
Young, Michael B.	MWDSC
Young, Ronald E.	Irvine Ranch Water District

## INTEGRATED RESOURCES PLAN ASSEMBLY

### STEERING COMMITTEE

Richard W. Atwater	General Manager, Central/West Basin MWD
Charles D. Barker	MWDSC Director, West Basin MWD
James H. Blake	MWDSC Director, City of Fullerton
Alf W. Brandt	MWDSC Director, LADWP
Timothy F. Brick	MWDSC Director, City of Pasadena
Christine M. Frahm	MWDSC Director, San Diego County Water Authority
Gerald A. Gewe	Engineer of Water Resources Planning, LADWP
Duane L. Georgeson	Assistant General Manager, MWDSC
Ted Grandsen	MWDSC Director, Calleguas MWD
Donald L. Harriger	General Manager, Western MWD of Riverside County
Bill Hill	MWDSC Director, Chino Basin MWD
F. Wiley Horne	Assistant General Manager, MWDSC
Donald R. Kendall	General Manager, Calleguas MWD
Lois B. Krieger	MWDSC Director, Western MWD
Debra C. Man	Director, Planning Division, MWDSC
Edward G. Means	Director, Resources Division, MWDSC
Timothy H. Quinn	Director, SWP and Conservation Division, MWDSC
Lester A. Snow	General Manager, San Diego County Water Authority
Stanley E. Sprague	General Manager, MWD of Orange County
John R. Wodraska	General Manager, MWDSC

### FACILITATORS AND RECORDERS

#### Assembly Facilitator

Lance deHaven-Smith

Director, Inst. of Gov't., Florida Atlantic Univ.

#### Assembly Recorder

Patty Metzger

Research Associate, Florida Atlantic Univ. Inst. of Gov't.

#### Subgroup Facilitators

Paul Brown

Byron Buck

Virginia Grebbien

Dale Hunter

Paul Jones

Karen Tachiki

Senior Vice President, Camp Dresser and McKee Inc.

Assistant to the General Manager, SDCWA

Assistant General Manager, Central/West Basin MWDs

Principal Government Affairs Representative, MWDSC

Assistant General Manager, MWD of Orange County

Assistant General Counsel, MWDSC

#### Subgroup Recorders

Jeanne-Marie Bruno

Marti Farley

George Martin

Karl Seckel

Lynda Smith

Kevin Wattier

Principal Engineer, MWDSC

Supervisor, Special Projects, MWDSC

Director of Water Conservation, LADWP

Ass't Mgr/District Engineer, MWD of Orange County

Associate Environmental Specialist, MWDSC

Regional Operations Manager, MWDSC

## INTEGRATED RESOURCES PLAN ASSEMBLY

### SUPPORT STAFF

#### Project Manager

Anne E. Baker

Executive Assistant for Strategic Policy  
Development, MWDSC

#### Support Staff

Carrie Blade

Office Services Assistant II, MWDSC

Randall Collins

Camera Technician, MWDSC

Lorrie Dove

Administrative Analyst, MWDSC

Bob Gomperz

Principal Public Affairs Representative, MWDSC

Steve Hirsch

Resource Specialist, MWDSC

Alice Maupin

Assistant Civil Engineer, MWDSC

Ken McSpadden

Video Technician, MWDSC

Jay Parks

Office Services Assistant II, MWDSC

Christel Strelecky

Senior Public Affairs Representative, MWDSC

Meng Ti

Telecommunications Technician, MWDSC

## GLOSSARY

**Brackish Groundwater** - Groundwater with levels of mineral contaminants that exceed drinking water standards.

**Business Principles** - Principles that will guide Metropolitan and its Member Agencies as the region proceeds with implementing the Integrated Resources Plan. These principles will guide resource development, including conservation programs, storage facilities (both groundwater and surface), and incentive programs in support of local resources.

**Capital Improvement Program** - Metropolitan's capital improvement program is designed to refurbish existing facilities needed to ensure: a reliable distribution system, expanded treatment facilities to meet current and future water quality regulations, and expanded storage and conveyance facilities to meet current and future storage requirements needed during droughts and emergencies.

**Common Regional Resource Requirements** - Those regional resource investments for imported and local supplies that are common to all of the resource mixes evaluated in the IRP.

**Conjunctive Use** - The practice of storing excess imported water in groundwater basins during normal and wet years for use during dry years thereby improving the region's supply reliability during droughts and emergencies.

**Drought Management Plan (DMP)** - A comprehensive water management plan that will minimize the need for mandatory supply cutbacks of imported water to Metropolitan's Member Agencies. The DMP will implement a series of water management strategies when a drought occurs, such as calling on stored imported water through its cooperative groundwater storage program, purchasing transfer water, and other management strategies designed to meet the water needs of the region. The DMP is a follow-up to the IRP and will provide essential information needed at the Member Agency level to ensure the development of local resources through groundwater, reclamation, and conservation programs.

**Firm Supplies** - The minimum existing imported and local supplies that would be available during a critical drought period, such as a repeat of 1991.

**Groundwater Recovery** - The treatment of degraded groundwater so that it could be beneficially used.

**Groundwater Replenishment** - The practice of recharging local groundwater basins with imported and local surface water supplies.

**Integrated Resources Planning (IRP)** - An open and participatory planning process which takes a broad view of all water resource options available to the region, and searches for the right combination of investments to achieve water supply objectives in a cost-conscious and environmentally responsible manner.

## GLOSSARY (CON'T)

**Lower Basin Coalition** - A partnership among State agencies in Arizona, California, and Nevada, Indian tribes, resource users, and environmental interests to consider a multi-species habitat conservation and protection program for the Lower Colorado River.

**Memorandum of Understanding (MOU) Regarding Urban Water Conservation in California** - A precedent-setting model for encouraging aggressive water conservation programs and for standardizing evaluation of water conservation savings. The MOU commits water suppliers to implement 16 urban water conservation measures. Presently, over 165 water suppliers, public interest groups, consultants, and other interested parties have signed the MOU.

**Metropolitan Water District Service Area** - A 5,139 square mile service area which includes portions of six counties in Southern California, over 250 communities, and a current population of about 15.7 million.

**Multi-Species Habitat Conservation Plan** - A coordinated ecosystem approach to resource management which ensures that regulations aimed at resolving one problem do not create new problems.

**Peaking Management** - Encouraging Member Agencies to reduce their summertime peak demands on Metropolitan's water treatment distribution system by applying charges and/or financial incentives.

**Rate Structure** - Metropolitan's new water rate structure which provides a stable water rate, secures a firm revenue base, retains system operating flexibility, and encourages management of resources.

**Reliability Goal** - A wholesale level supply reliability goal, stating that Metropolitan will provide 100 percent of full service wholesale demand to its Member Agencies 90 percent of the time. During critical drought periods, such as a repeat of 1991, Metropolitan will never provide less than 80 percent of full service wholesale demands.

**Resource Mixes** - Combinations of imported and local supply investments that meet a desired reliability goal and other regional objectives. Each resource mix is designed to include: (1) water conservation; (2) core imported and local supplies -- supplies available each and every year; (3) storage resources -- both groundwater and surface; and (4) swing supplies -- supplies which are available to meet demands during supply shortages, such as water transfers.

**Sacramento-San Joaquin River Delta (Delta)** - An environmentally sensitive area near Sacramento through which State Water Project water must flow to reach Southern California and other areas. Moving water across the Delta during the high-demand summer months, especially, is becoming more difficult as additional water is required for environmental purposes.

**Total Dissolved Solids** - A measure of the mineral content of water.

## GLOSSARY (CON'T)

**Water Conservation Best Management Practices** - Proven and reliable water conservation technologies and programs that address residential, commercial, industrial, and landscape water uses.

**Water Management Principles** - Principles which provide guidance in implementing recommended resource developments.

**Wheeling** - The use of Metropolitan's system for transmission of non-Metropolitan water supplies.