

SECTION 6 - SHORTAGE CONTINGENCY ANALYSIS

The Act requires that urban water agencies conduct a water shortage contingency analysis as part of their 2000 plan. This section includes the Authority's analysis, which addresses a catastrophic shortage situation and drought management.

6.1 CATASTROPHIC WATER SHORTAGE

A catastrophic water shortage occurs when a disaster, such as an earthquake, results in insufficient water available to meet the region's needs or eliminates access to imported water supplies. The following is a description of the Authority's Emergency Response Plan (ERP) and Emergency Storage Project (ESP), both developed in order to protect public health and safety and to prevent or limit economic damage that could occur from a severe shortage of water supplies.

6.1.1 Emergency Response Plan

The purpose of the Authority's ERP is to provide staff with the information necessary to respond to an emergency situation that results in severe damage to the Authority's water distribution system or impedes the Authority's ability to provide reliable water service to its member agencies. The ERP describes the emergency situations and incidents that will trigger the activation of the Authority's ERP and Emergency Operations Center (EOC) in addition to providing direction and strategies for responding to a crisis situation. The Authority's ERP includes:

- Authorities, policies, and procedures associated with emergency response activities;
- EOC activities - including EOC activation and deactivation guidelines;
- Multi-agency and multi-jurisdictional coordination, particularly between the Authority, its member agencies, and Metropolitan in accordance with Standardized Emergency Management System (SEMS) guidelines;
- Emergency staffing, management, and organization required to assist in mitigating any significant emergency or disaster;
- Mutual Aid Agreements and Covenants which outline the terms and conditions under which mutual aid assistance will be provided;
- Pre-emergency planning as well as emergency operations procedures.

In addition, the Authority's ERP Manual uses a step-by-step approach to emergency response planning by providing such procedural tools as action checklists, resource and information lists, personnel rosters, and listings of established policies and procedures. The Authority's plan parallels many of the same plan components contained in the Unified San Diego County Emergency Services Organization's "Operational Area Emergency Plan" (OAEP). In turn, the OAEP serves to support and supplement the Authority's ERP.



6.1.2 Authority's Emergency Storage Project

In 1998 the Authority's Board approved implementation of the ESP, to reduce the risk of potentially catastrophic damages that could result from a prolonged interrup-



tion of imported water due to earthquake, drought or other disaster. As described in **Section 1.2.6**, the ESP is a system of reservoirs, pipelines and other facilities that will work together to store and move water around the county in the event of a natural disaster. The project will also provide an additional 90,100 AF of stored water. Combined with the storage space already dedicated to emergency use, the additional storage capacity is projected to meet the county's emergency needs through at least 2030.

In sizing the ESP, the Authority assumed a 75 percent level of service to all Authority member agencies during an outage and full implementation of the water conservation BMPs. The allocation of the ESP supplies to the Authority's member agencies in a prolonged outage situation without imported supplies is calculated as follows:

- 1 Estimate the duration of the emergency. (i.e., time to repair damaged pipeline(s)).
- 2 Calculate the total estimated annual M&I and agricultural water demand for each member agency for the duration of the emergency.
- 3 Determine demands at 75 percent level of service for M&I customers and 50 percent level of service for agricultural customers. (Agriculture has agreed to a reduction in deliveries at twice the rate of system-wide demands during an emergency in order to pay a reduced Special Agricultural Water Rate (SAWR) to the Authority.)
- 4 After determining the appropriate level of service demand for the agency, subtract the amount of water that the agency can self supply from local sources during the emergency up to a limit of four average months of demand. Local supplies include groundwater, recycled water and local surface water.
- 5 The remaining unmet demand is the agency's need for water from the ESP. This supply coupled with any local supplies, will maintain a 75 percent level of service to M&I customers in a catastrophic emergency.

Additionally, if there is extra water available in the ESP, from the reduced level of service provided to SAWR customers, such supplies are reallocated to commercial and industrial customers to limit economic damages during a catastrophic shortage situation. Construction has begun on Phase 1 of the ESP with completion of the entire project expected in 2010. Supplies from the ESP can also be utilized in a prolonged drought situation where imported and local supplies are not adequate to meet 75 percent of the Authority's member agencies M&I demands. In July 2000, the Authority Board adopted a Memorandum of Understanding regarding the ESP, which states that the Authority will develop a Water Shortage Management Plan for Authority water, including supplies from the ESP.



6.2 DROUGHT MANAGEMENT

6.2.1 Background – 1987-1992 Drought

The last major drought in California occurred between 1987 and 1992 and caused severe water supply shortages throughout the state. During early March 1991, at the peak of the drought, Metropolitan's SWP supplies were reduced by 90 percent. Subsequently, Metropolitan voted to impose a 50 percent reduction in imported deliveries to the Authority. The results of Metropolitan's cutback would have been devastating to the Authority's businesses and residents except for the miracle March rainfall that occurred later that month. These rains allowed the SWP to reduce its level of cutback to 80 percent, and Metropolitan later rolled back its call for reduction from 50 percent to 31 percent. Even at this level the Authority was impacted much more than other Metropolitan members, because of its high dependence upon imported supplies from Metropolitan. Other agencies with more local supplies, particularly groundwater agencies faced retail cutbacks of only 10 to 20 percent. Metropolitan had the ability to purchase additional supplies from the State Water Bank to reduce the Authority's level of shortage, but chose not to do so. The Authority purchased State Water Bank supplies at a cost of over \$8.5 million on its own behalf and this, coupled with maximizing local surface supplies kept retail cutback to the 20 percent level. This level of cutback lasted a year until in April 1992 when the level of reduction was reduced to a voluntary level of conservation.

In a water shortage emergency, it is reasonably likely that the Authority's Board of Directors would declare an emergency and allocate its water to meet requirements for human consumption, sanitation and fire protection. However, in addition to planning to meet such emergency needs at the time that such conditions might exist, the Board of Directors may also determine, as it did during the last drought, to adopt a drought plan that does not invoke Section 350 of the Water Code. Any such drought plan could take into account the differing needs of the Authority's member



agencies. Finally, the Authority, in cooperation and consultation with its member agencies, as water retailers, will be developing rules and regulations for water management and shortage allocation as authorized by the County Water Authority Act. This is discussed further in the following sections.

6.2.2 Plan for Diversifying Supplies

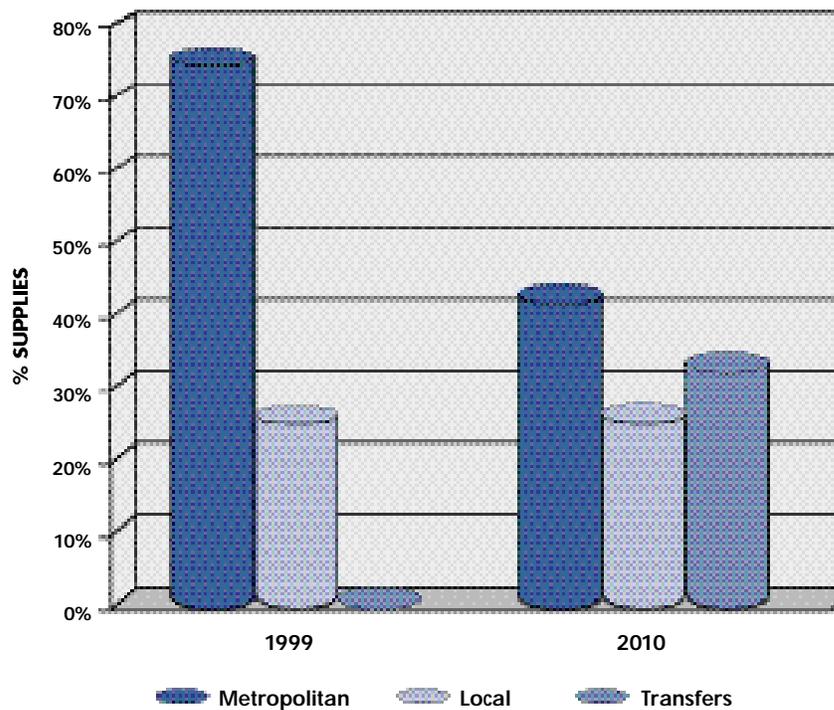
The Authority responded to the 1987-92 drought by developing a comprehensive plan to diversify the regions' water supply. A Water Resources Plan that assessed the availability of traditional local water supplies and identified major new water sources was developed in 1993 to guide the Authority's efforts to ensure a reliable water supply for the region. The plan, updated in 1997, describes the steps the Authority is taking to ensure San Diego County achieves a cost-effective, safe, reliable water supply mix through the year 2015. While recognizing that the Authority will continue to import the majority of its water supply from Metropolitan over the next few years, the plan supports diversification of the Authority's supplies, including, but not limited to, enhanced local water supply programs, core water transfers (such as the Authority/IID transfer of conserved water), other reliable transfers and additional programs to enhance the Authority's supply reliability. The Authority plans to assist and cooperate with its member agencies in the development of these diverse sources of supply.

Consistent with the direction provided in the 1997 plan, the Authority, in 1998, entered into a Water Conservation and Transfer Agreement with the IID, an agricultural district in neighboring Imperial County. As described in detail in **Section 3.2**, the 75-year term Agreement calls for up to 200,000 AF of Colorado River water to be conserved by Imperial Valley growers through the implementation of extraordinary conservation measures. The conserved water will be transferred to the Authority via Metropolitan's CRA, through terms established in a 1998 Contract for the Exchange of Water between the Authority and Metropolitan. This transfer supply will provide increased reliability for the region. During dry years, when water availability is low, the conserved water will be transferred under IID's Colorado River rights, which are among the most senior in the Lower Colorado River Basin. In addition, under the exchange agreement with Metropolitan, the Authority's water acquired from IID will be treated as independently owned local water in the same manner as independently owned local water supplies of other Metropolitan member agencies.

Water recycling projects also provide an excellent "drought-proof" supply of water that is available when other supplies may be reduced. Combining transfers, water recycling, groundwater supplies and potential seawater desalination, the region will have reduced dependence upon a single source and have a mix of supplies that will provide increased reliability in normal years and drought situations.

The graph shown in **Figure 6-1** illustrates how the Authority plans to diversify the regions supply and reduce dependence upon Metropolitan through the development of potential local supplies and water transfers.

**FIGURE 6-1
DIVERSIFICATION OF AUTHORITY'S SUPPLY CURRENT
AND PROJECTED SOURCES**



6.2.3 Metropolitan Water Surplus and Drought Management Plan

Over the next five to ten years, the Authority will continue to import the majority of its water supply from Metropolitan. Accordingly, the reliability of the Authority's water supply is subject to change at the discretion of the Metropolitan Board of Directors. The Authority's shortage contingency analysis for the 2000 Plan assumes that under Metropolitan's Water Surplus and Drought Management Plan (WSDM Plan), adopted by the Metropolitan Board of Directors in April 1999, remains unchanged. However, the Authority recognizes that Board actions at Metropolitan could change the terms of the WSDM Plan at anytime and therefore the WSDM Plan cannot be relied upon to ensure the reliability of Authority supplies.

Subject to the foregoing, the WSDM Plan states that in an extreme shortage situation, Metropolitan would implement an allocation plan. The WSDM Plan does not contain a methodology for allocating imported water supplies during an extreme drought situation. Metropolitan plans to adopt an allocation formula as part of the WSDM Plan following approval of a new rate structure in FY2001.

The Authority believes that Metropolitan cannot change Section 135 of Metropolitan's Act through the adoption of the WSDM plan or otherwise; and that Section 135 puts a cloud on the reliability of the Authority's water purchases in excess of its preferential right to water. While all parties appear to concur that water code Section 350 would override Section 135 in a situation in which Section 350 is invoked to protect public health and safety, the Authority believes Section 350 cannot be relied upon to validate any WSDM Plan allocation absent concurrence and a waiver by the member agencies who hold preferential rights, most notable the City of Los Angeles. The Authority has proposed the elimination of preferential rights at Metropolitan, but until the cloud of Section 135 is removed, the reliable supply of water the Authority can expect from Metropolitan in a shortage situation is the amount of the Authority's preferential right, which leaves the Authority's position in a shortage situation uncertain.

6.3 SUMMARY

The shortage contingency analysis included in this section demonstrates that the Authority and its member agencies, through the ERP and ESP, are taking actions to prepare for and appropriately handle a catastrophic interruption of water supplies. The analysis also describes actions being taken by the Authority to firm-up its supplies from Metropolitan to provide increased reliability in a drought and reduce if not eliminate shortages.

The Authority does not currently have a shortage allocation plan. The Authority's last allocation plan was adopted in 1994 (Ordinance 94-3) and expired on December 31, 1995. With the majority of supplies within the region still imported from Metropolitan, it is difficult for the Authority to adopt a comprehensive shortage allocation plan without knowing the amount of supplies that will be available from Metropolitan in a shortage situation. The Authority Board will develop a Water Shortage Management Plan that will include the appropriate elements outlined in the Act that are applicable to the Authority. The Authority anticipates adopting the WSMP in FY2002 and will include a shortage contingency plan in the 2005 update of the plan.