WATER TOMORROW

2020 Integrated Resources Plan

Identifying Drivers of Change

Building the Foundation for Scenario Planning

Member Agency Technical Workgroup Meeting

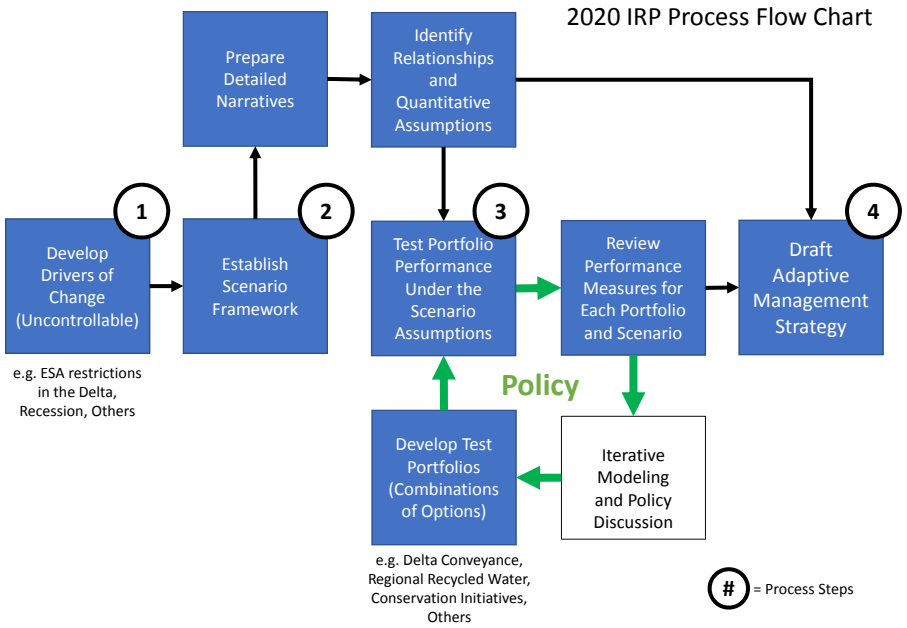
May 13, 2020

Objectives for Member Agency Technical Workgroup

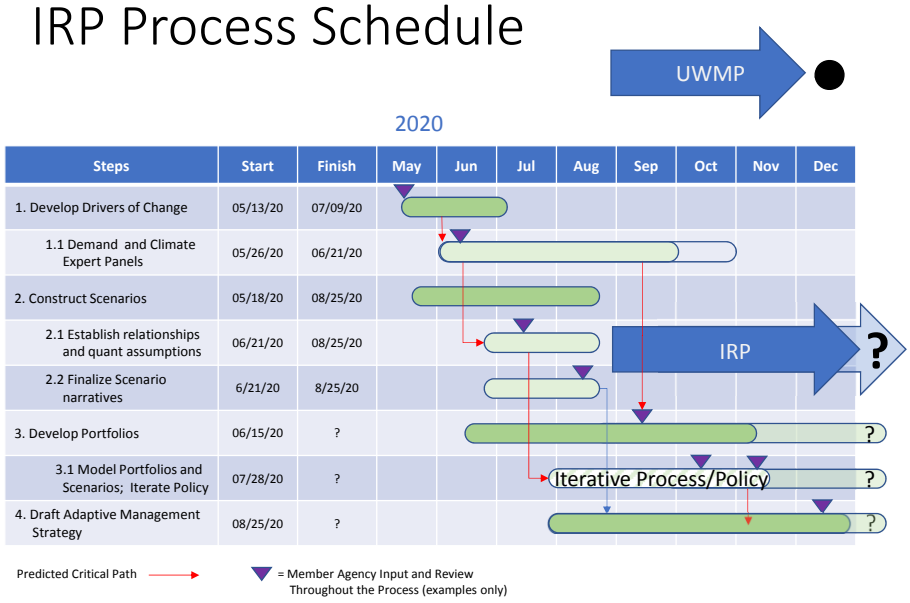
- Quickly review the 2020 IRP Process
  - Scenario planning approach
  - Roles
  - Schedule
- Initiate drivers-of-change brainstorming
- Assist with communications with your agencies

Planning Glossary

Term	Definition	Synonyms
Drivers of Change	Specific factors whose future values and outcomes are uncertain but significantly impact future water supply reliability	Exogenous Uncertainties
Learning Scenario	A detailed scenario that includes quantified outcomes of various Drivers of Change and can be used to inform the development of specific water resources and demand management actions and signposts	Plausible Future, Future State
Options	Both resource investments and policy actions that Metropolitan and Member Agencies can undertake to achieve policy goals	Levers, Measures
Portfolio	A combination of options for testing under the conditions established in each Learning Scenario	Resource Mix
Water Supply Reliability	Consumers having access to and receiving water supply to meet their water demands with no curtailment or pricing penalties	



IRP Process Schedule



Process Steps

Definition:

"A social, technological, economic, environmental, cultural, or political force in or around the system, a small change in which would have **a big impact on those aspects of the system that matter to you**."

Adam Kahane, Transformative Scenario Planning

Process Steps

- Identify the long-list of drivers and trends
- Solicit MA feedback on the most consequential and uncertain drivers

Drivers of Change Discussion

(Examples only—not a complete list)

Climate Change

Economic

Environmental

Others?

Drivers of Change Ideas

- Climate Change
  - ***Continuing declines among endangered species*** – The ESA and continued deterioration of the Sacramento-San Joaquin Delta ecosystem that could further restrict pumping operations
  - ***Increasingly unpredictable hydrological conditions*** – The loss of long-term climate forecasting capabilities, complicating capital investment decisions and other actions
  - Others?

Drivers of Change Ideas

- Economic
  - ***High unemployment during and following COVID*** – Economic consequences of the COVID pandemic in region, creating political limits to future water rate increases and reducing overall demands.
  - ***Worsening income inequality*** – Increasing income inequality throughout the region, exacerbating environmental justice issues and creating political stress on water governance
  - Others?

Drivers of Change Ideas

- Environmental
  - ***Growing concern about emerging contaminants*** – Increased awareness and concern regarding existing, emerging, and unknown contaminants and expanding regulatory requirements
  - ***Groundwater impairment due to PFAS/PFOS contamination*** – Potential loss of groundwater supplies resulting in increased demand on SWP deliveries
  - Others?

Drivers of Change Discussion

A big impact on those aspects of the system that matter to you.

- Is this what you thought drivers of change are?
- What other categories should we be looking at?
- What are other drivers of change not listed?
- Of the drivers of change discussed today, what do you think are the most important?

Drivers of Change Survey

- Seeks to identify IMPORTANCE of driver of change TO YOUR AGENCY
- Uses 5-point scale of importance

Continued subsidence on the California Aqueduct that would reduce Southern California's capacity to capture and move SWP supplies.

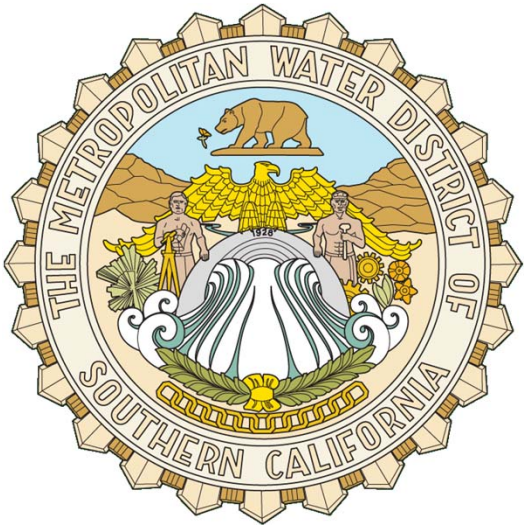
Not at all important	Slightly important	Moderately important	Very important	Extremely important

Increased reliance on small-scale decentralized technologies, lessening reliance on the regional water grid.

Not at all important	Slightly important	Moderately important	Very important	Extremely important

Near Term Next Steps

- Develop list of drivers of change
  - MA Technical Workgroup today
  - MA Managers on May 15
- Send Drivers of Change Survey to Member Agencies
- Next meetings
  - Stakeholder workshops (May 20 & 22)
  - Share with and receive input from Board (May 26)
  - Technical workshop (June 10)
  - Member agency manager meeting (June 12)
- Move into scenario development


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

DISCUSSION DRAFT

Not an exhaustive list—seeking additional drivers.

Potential Drivers of Change
Impacting Supplies and Demands

State Water Project

1. ***Increasing vulnerability to subsidence*** – Continued subsidence on the California Aqueduct that would reduce Southern California's capacity to capture and move SWP supplies.

2. ***Continuing declines among endangered species*** – The Endangered Species Act and continued deterioration of the Sacramento-San Joaquin Delta ecosystem that could further restrict pumping operations.

3. ***Declining political commitment to Delta improvements*** – The importance of political leadership within California as a necessary ingredient to drive the modernization of the Delta conveyance system.

4. ***Increasing salinity in the Delta*** – A changing climate that prompts sea level rise and more variable weather and fewer windows of opportunity to capture supplies.

5. ***Aging and deteriorating infrastructure*** – Aging infrastructure that reduces reliability and, when addressed, increases costs and local water rates.

6. ***Conflicting State and Federal wildlife agencies*** – An unpredictable regulatory environment caused by state and federal wildlife agencies that reduces the incentive to invest in the SWP.

7. ***Conflicting State and Federal policy directions***: Deteriorating state and federal relations that hamper project operations and impede permitting of conveyance and other improvements.

8. ***Continuing rebalancing of beneficial uses*** – Future State Water Board decisions on the beneficial uses of Sierra water that either result in shared voluntary solutions or put additional environmental burdens on the SWP because of its junior water right status.

9. ***Others?***

DISCUSSION DRAFT

Not an exhaustive list—seeking additional drivers.

Colorado River

1. ***Increasing CR salinity and ag runoff*** – Increasing salinity and agricultural runoff in the Colorado River, worsening water quality and increasing treatment costs/challenges.

2. ***Increasing invasive species populations*** – Increasing populations of invasive species due to warmer water temperatures, threatening native species and ongoing habitat conservation plans for required ESA compliance.

3. ***More frequent compounding climate impacts*** – Compounding impacts of increased wildfires on water quality and flood risks (debris flows), complicating water operations and worsening water quality.

4. ***Declining cooperation among Colorado River agencies*** – Impacts of State and Federal conflicts on Colorado River and the potential of reduced cooperation, threatening collaborative solutions.

5. ***Divergent interests of agricultural and urban sectors*** – Relations between the agricultural and urban sectors throughout the lower Colorado River Basin that could determine the success or failure of renegotiation of operational guidelines needed by 2026.

6. ***Increasing ambiguity regarding agency roles and responsibilities*** – The importance of augmentation efforts, such as the MWD Regional Recycling project and the potential partnership with Southern Nevada and Central Arizona, to reduce future gaps between supplies and demands.

7. ***Others?***

Local Supplies

1. ***Increasing microclimate variability*** – Increasingly different coastal and inland microclimates, widening differences in per-capita water use.

2. ***Increasing local supplies*** – Increasing member agency investments to close the MWD allocation gap, resulting in a more diverse regional portfolio and variations in reliability.

3. ***Increasing use of decentralized technologies*** – Increased reliance on small-scale decentralized technologies, lessening reliance on the regional water grid.

4. ***Growing concern about emerging contaminants*** – Increased concerns regarding existing, emerging and unknown contaminants, complicating local diversification efforts.

5. ***CEC Regulatory Expansion*** – Expanding regulatory requirements for contaminants of emerging concern (CEC), increasing treatment costs and placing pressure on non-contaminated supplies.

6. ***Groundwater loss due to PFAS*** – Loss of groundwater supplies due to PFAS/PFOS contamination, putting pressure on imported supplies.

7. ***Increased SWP reliance for recharge*** – Increasing reliance on SWP for groundwater recharge, complicating regional operations and adding stress on the Bay-Delta.

8. ***Pressure for desalination*** – Increasing pressure to incorporate seawater desalination into the regional water supply, increasing costs and shifting operational challenges.

9. ***Increased stormwater capture*** – Increasing commitment and funding to incorporate stormwater into water supply, augmenting groundwater basins and prompting new institutional arrangements.

10. ***State-level recycling mandates*** – Ongoing state-level pressure to eliminate wastewater discharges, straining political relations and complicating cost-effective portfolio planning.

11. ***Wastewater flow decreases*** – Continuing decline in wastewater flows, further stranding investments in treatment and reducing recycling opportunities while increasing treatment costs.

12. ***Aging purple pipe systems*** – Aging and deteriorating non-potable reuse systems, potentially stranding "purple pipe" investments and creating new operational challenges.

13. ***Increasing anticipation of DPR regulations*** – Increasing implementation of direct potable reuse technologies, overcoming public acceptance issues and regulatory hurdles.

14. ***Others?***

Water Demands

1. ***Aging population*** – Aging population at the regional level with coastal versus inland disparities, challenging historic water regionalism.

DISCUSSION DRAFT

Not an exhaustive list—seeking additional drivers.

2. ***Increasing housing density*** – Increasing density due to multi-unit housing preferences, driving down per-capita water use.

3. ***Demand hardening*** – Increasing demand hardening, improving system resilience but straining allocation plan strategies.

4. ***Unknown COVID land use responses*** – Land use changes resulting from response to COVID pandemic, potentially shifting water demands.

5. ***Unknown COVID economic responses*** – Economic consequences of COVID pandemic in region, creating political limits on future water rate increases with potential reliability impacts.

6. ***Uneven COVID recovery*** – Uneven post-COVID recovery within the region, creating uneven future water investments and reliability.

7. ***Worsening income inequity*** – Increasing income inequity throughout the region, worsening environmental justice issues and creating additional political stress on water governance.

8. ***Decreasing trust in water quality*** – Declining public confidence in water quality, destabilizing water governance and threatening capacity to make new investments.

9. ***Balkanization of regional interests*** – Increasing polarization and lack of trust among communities, eroding regional institutions such as Metropolitan and decreasing regional reliability.

10. ***Increasingly powerful sub-regional agencies*** – Emerging capabilities among some sub regional member agencies, creating variations in reliability and disincentives for regional investment.

11. ***Increased state-local involvement*** – Increasing state-level involvement in local water management, threatening the viability of long-term local water and financial planning.

12. ***Continued technological innovation*** – Advances in membrane, nanotechnology and biological treatment technologies, lowering costs and the cost differential between new and traditional supplies.

13. ***Others?***