



# Marine Corps Installations West



SDCWA – San Diego County Water Authority  
 IID – Imperial Irrigation District  
 Desal – Carlsbad Desal Plant  
 (S) – South; (N) – North

Met – Metropolitan Water District of Southern  
 SWP – State Water Project  
 \*SMR – Santa Margarita River with artificial recharge from Colorado River



# MCIWest Water Security Risks



<i>Natural Hazards for Water Security</i>						
Hazard Dimension	Hazard		Cause			
1	Meteorological	1	Drought	Hydrologic Cycle		
		2	Flooding	Hydrologic Cycle		
		3	Wind	Atmospheric Processes		
		4	Temperature	Atmospheric Processes		
		5	Lightning	Atmospheric Processes		
		6	Climate Change	Atmospheric Processes/Anthropogenic		
		7	Aridity	Geography		
2	Geological	8	Earthquake	Plate Tectonics		
		9	Inundation	Sea-level Rise/Climate Change		
		10	Landslide/Mudslide	Plate Tectonics/Hydrologic Cycle		
		11	Subsidence	Plate Tectonics/Aquifer Overdraft		
		12	Mineral Contaminants	Natural Elements within Soil		
		13	Radionuclides	Natural Elements within Soil		
		14	Bacteria and Viruses	Natural Elements within Soil		
		15	Volcano	Plate Tectonics		
<i>Human Threats to Water Security</i>						
Threat Dimension	Threat		Manifestation			
1	Physical	1	Attacks	1	Terrorism (physical and CBR)	
				2	Vandalism	
				3	Arson	
				4	Cyber	
				5	Vehicle	
	2	Accidents	2		6	Construction
					7	Fire
					8	Operator Error
					9	Equipment Failure
					10	Infrastructure Failure
					11	Industrial Control System Failure
2	Institutional	3	Governance	12	Legal	
				13	Funding	
				14	Political Will	
				15	Decision Paralysis	
				16	System Design	
	4	Management	4		17	Complexity
					18	Over allocation
					19	Planning
					20	Operations
					21	Maintenance
3	Societal	5	Worldview	22	Personnel	
				23	Engagement	
				24	Tribalism	
				25	Ideology	
				26	Undervaluation of Water	
				27	Manufactured Ignorance	
				28	Overconsumption/Carrying Capacity	
6	Overpopulation					

## Resilience in terms of Risk:

1. Prioritizing investment in Risk Management strategies that:

- Eliminate a risk
- Mitigate a risk
- Adapt to a risk
- Integrate a portfolio of risks

2. **Resiliency** is measured in the time, effort and cost required for a system to recover its full operational capability after a disruption (minor to catastrophic).



# MCIWest Installation Commanders



MCIWest Water Security Risk Response Strategies		MCB/MCAS CPEN	MCAS Miramar	MCAS Yuma	MCLB Barstow	MCA GOC 29 Palms	MCRD San Diego	MWTC Bridgeport	
Meteorological	Drought	S/ M/ A/T	T	A/M	T/S /M	NA	T	A	
	Flooding	A	NA	NA	A	A	NA	A	
Geological	Earthquake	A	A	A	A	A	A	A	
	Inundation	A/T	NA	NA	NA	NA	NA	NA	
	Landslide/Mudslide	A	NA	NA	NA	NA	NA	NA	
	Subsidence	NA	NA	NA	NA	A/T	NA	NA	
	Groundwater Contamination	A	NA	NA	M	M	NA	A	
Physical	Attacks	Terrorism, Vandalism, Arson	A	A/T	T	A	A	A/T	A
		Cyber	A	A/T	T	A	A	A/T	A
	Accidents	Equipment, Infrastructure, ICS Failure	A	T	T	A	A	T	A
Institutional	Governance	Legal	A	NA	A	A	NA	NA	A/S
		Funding	T	T	T	T	T	T	T
		Political Will, Decision Paralysis, System Design, Complexity	A/S	NA	A/S	A/S	A/S	NA	A/S
	Management	Planning, Operations, Maintenance, Personnel	T	NA	T	A/S	T	NA	T
		Engagement	T	NA	T	T	T	NA	T
Societal	Worldview	Tribalism, Ideology, Ignorance	A/S	S	A/S	A/S	A/S	S	A/S
<b>Legend:</b>		Priority 1							
S - Share	A - Accept	Priority 2							
T - Transfer	M- Mitigate	Priority 3							
NA - Not Applicable									

## Prioritized Risks:

### 1. From (45) risks to (16)

- Eliminate low probability/impact
- No “wicked problems” (Overpopulation, Climate Change, Aridity)
- No risks beyond CO’s ability to address

### 2. Prioritize 1, 2, 3 – based on likelihood and severity of impacts

### 3. Risk Management Strategies:

- **Share** the risk with other stakeholders
- **Transfer** the risk to other stakeholders
- **Accept** the risk into your portfolio and invest in resilience
- Invest in risk **Mitigation** (decrease vulnerability to risk, decrease impacts of the risk)