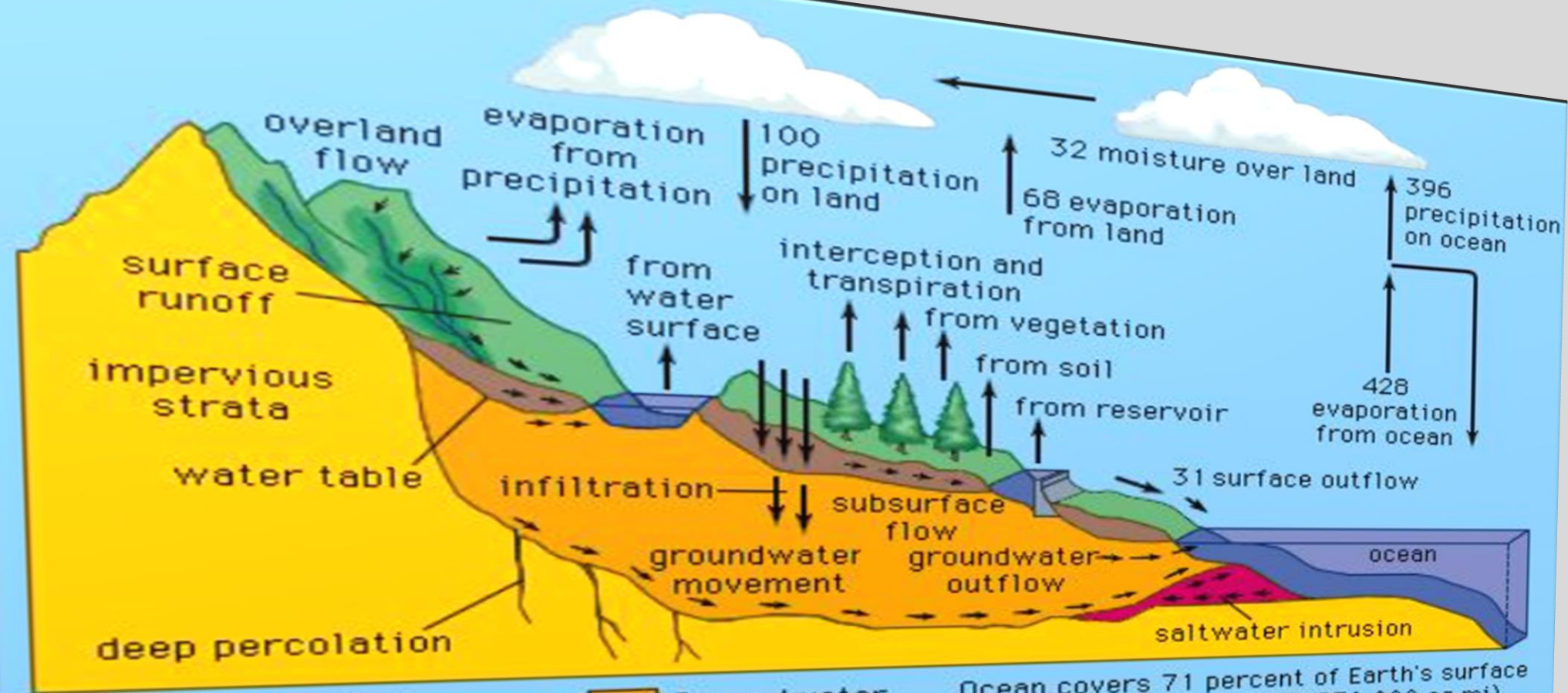


Water Planning Across Institutional Boundaries

Western State Engineers Conference
October 2019 | Oklahoma City, OK

Courtney Black
Senior Water Resources Engineer

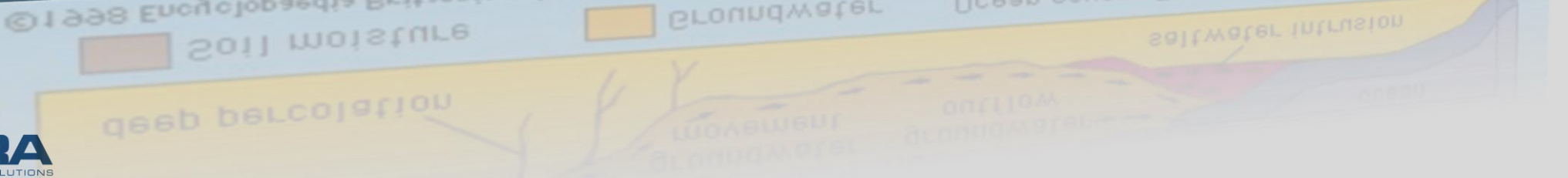




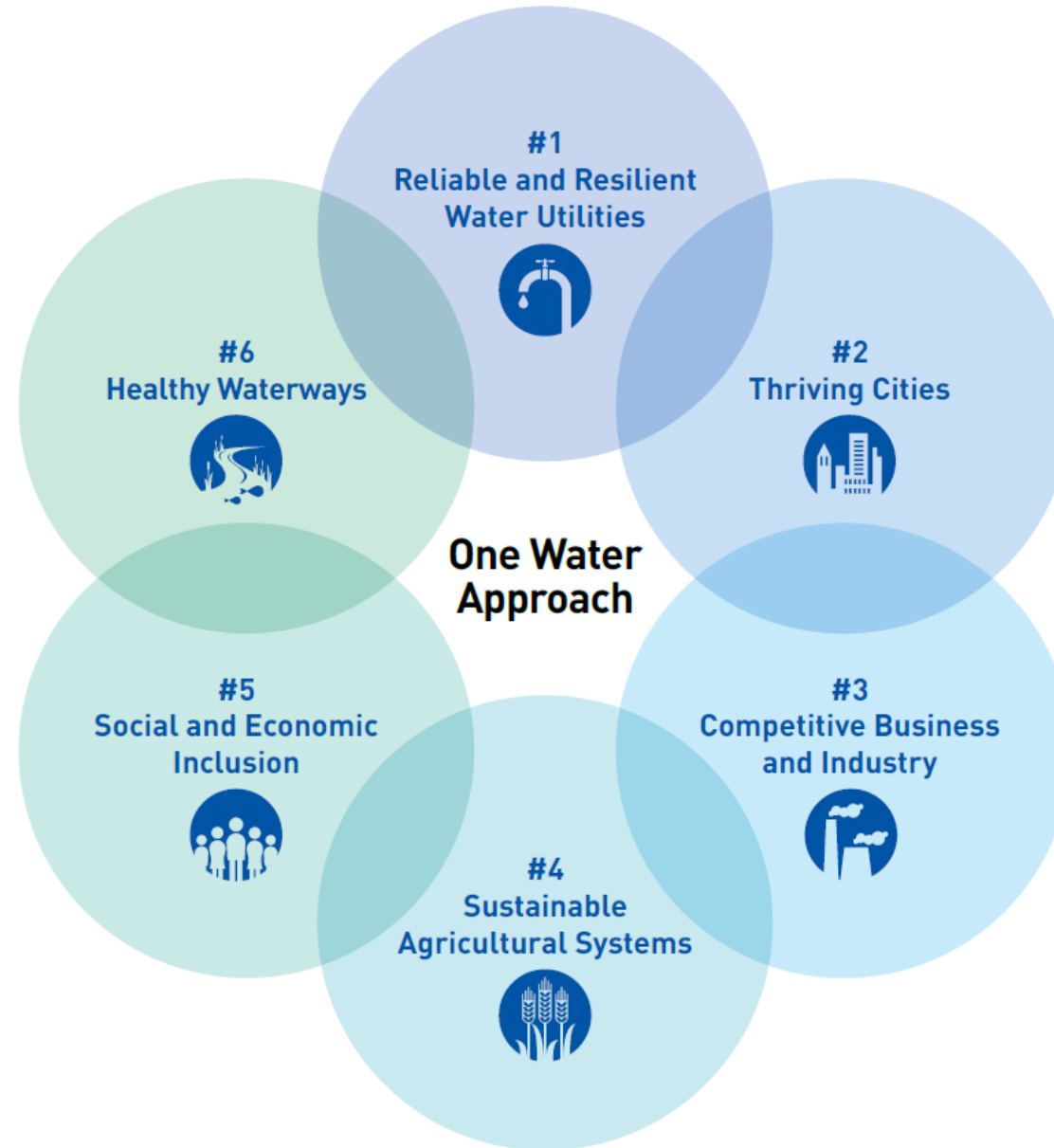
Soil moisture
 Groundwater

©1998 Encyclopaedia Britannica, Inc.

 Ocean covers 71 percent of Earth's surface
 510,000,000 sq km (196,950,000 sq mi)

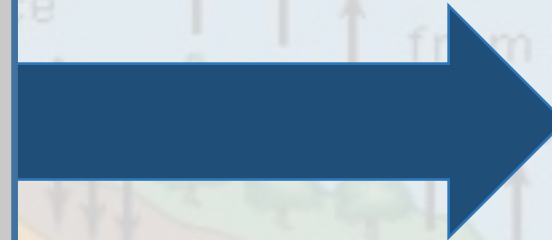


US Water Alliance

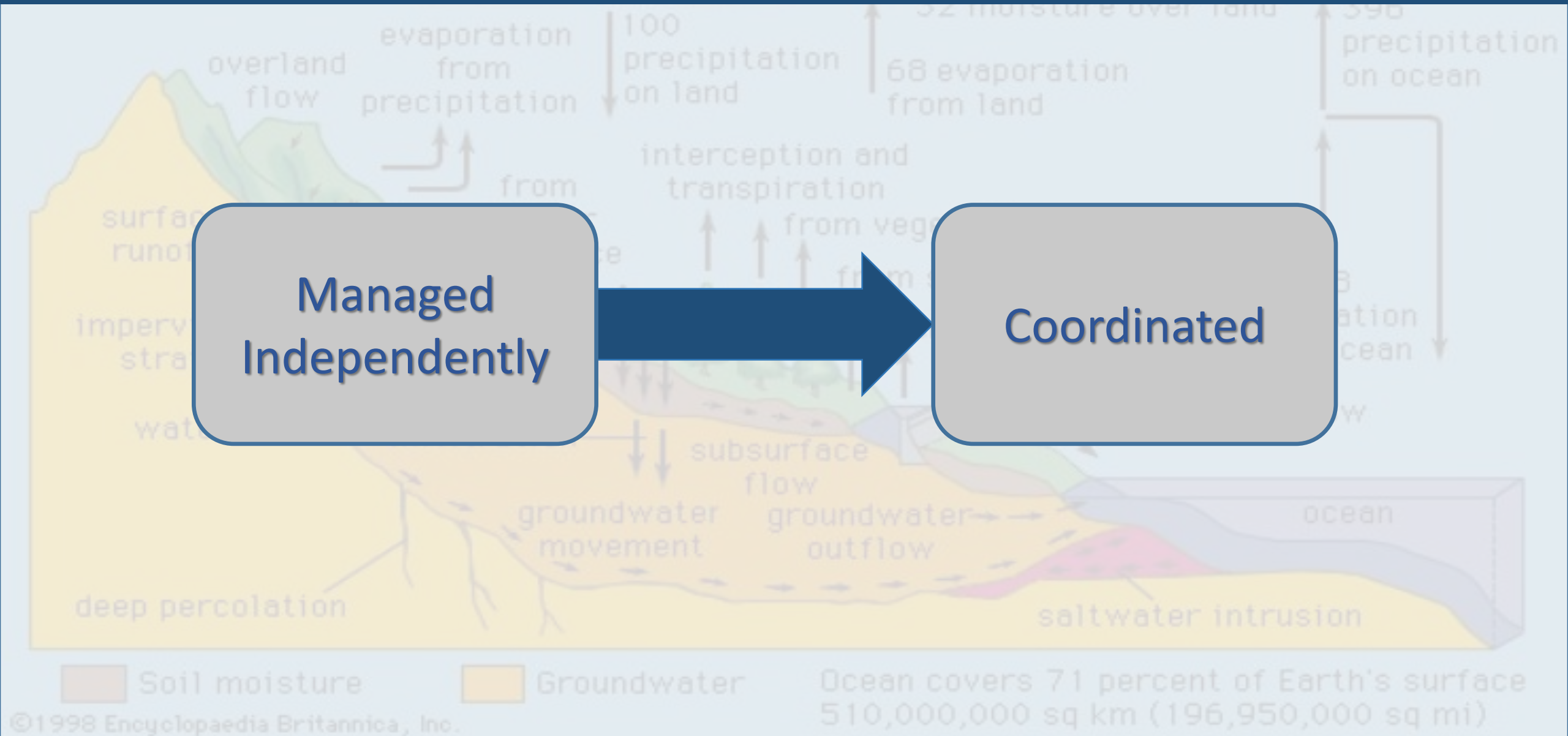


Water Supply – Wastewater - Stormwater

**Managed
Independently**

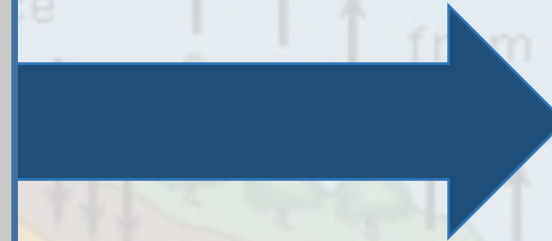


Coordinated

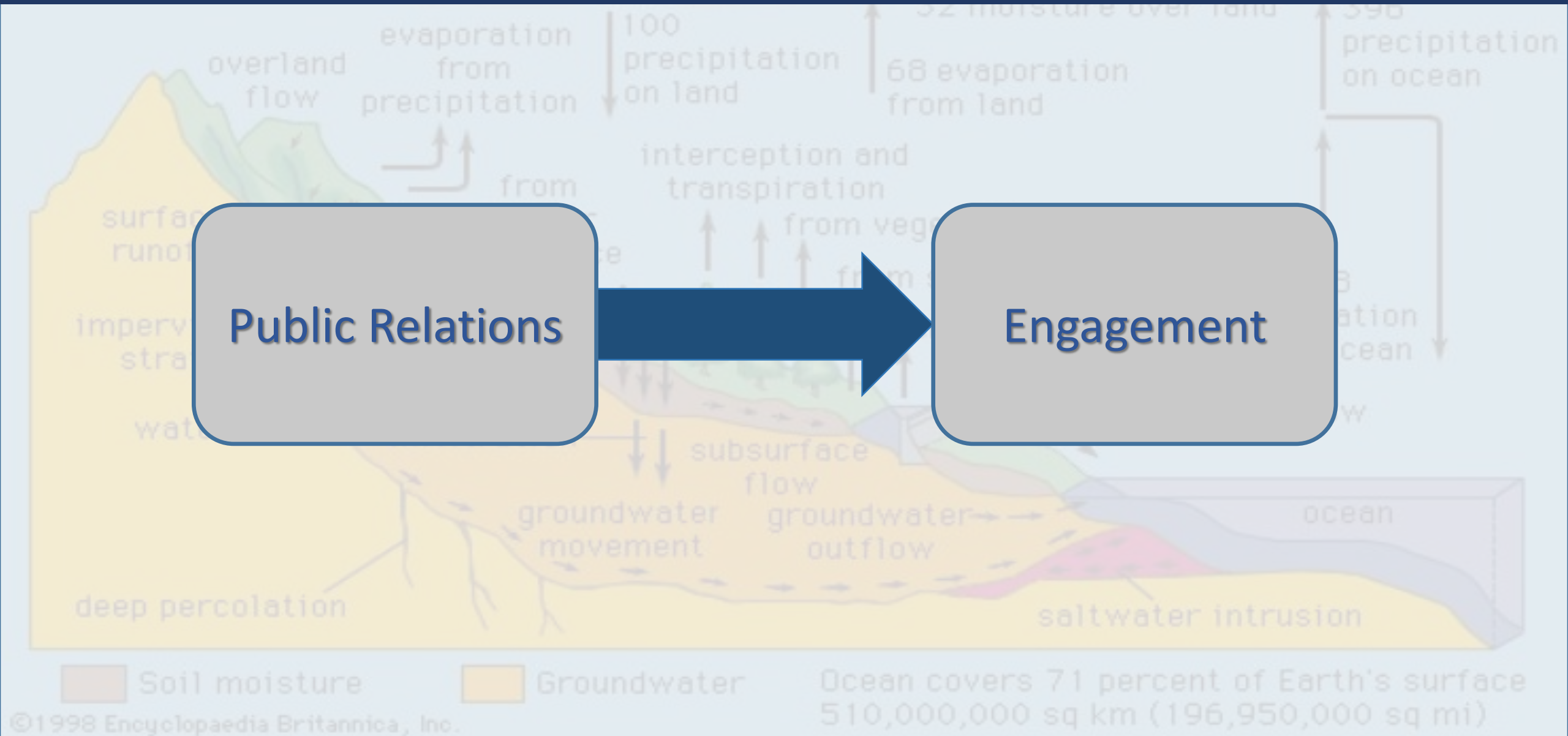


Stakeholder Collaboration

Public Relations

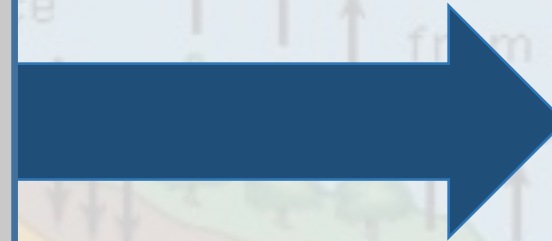


Engagement

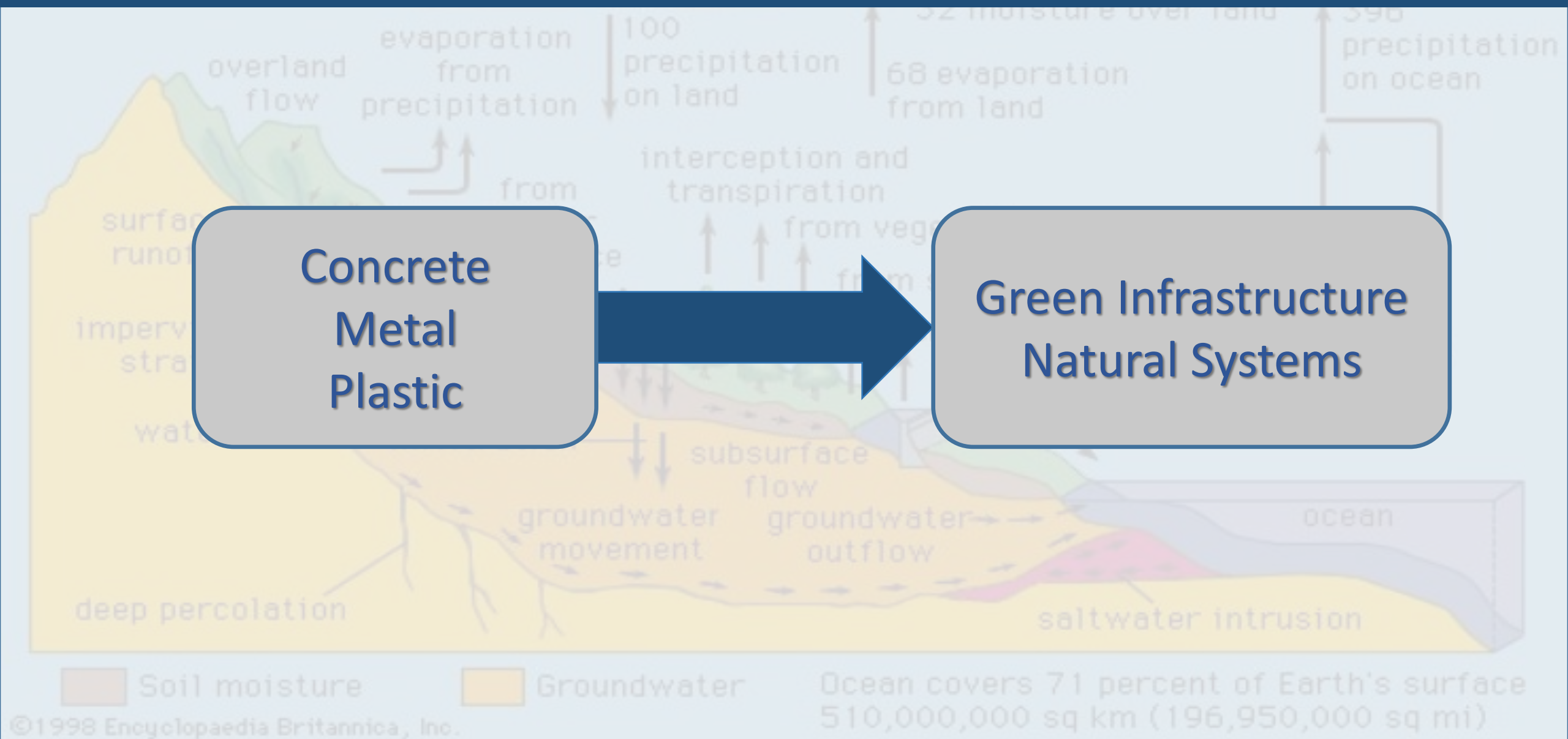


Infrastructure Perspective

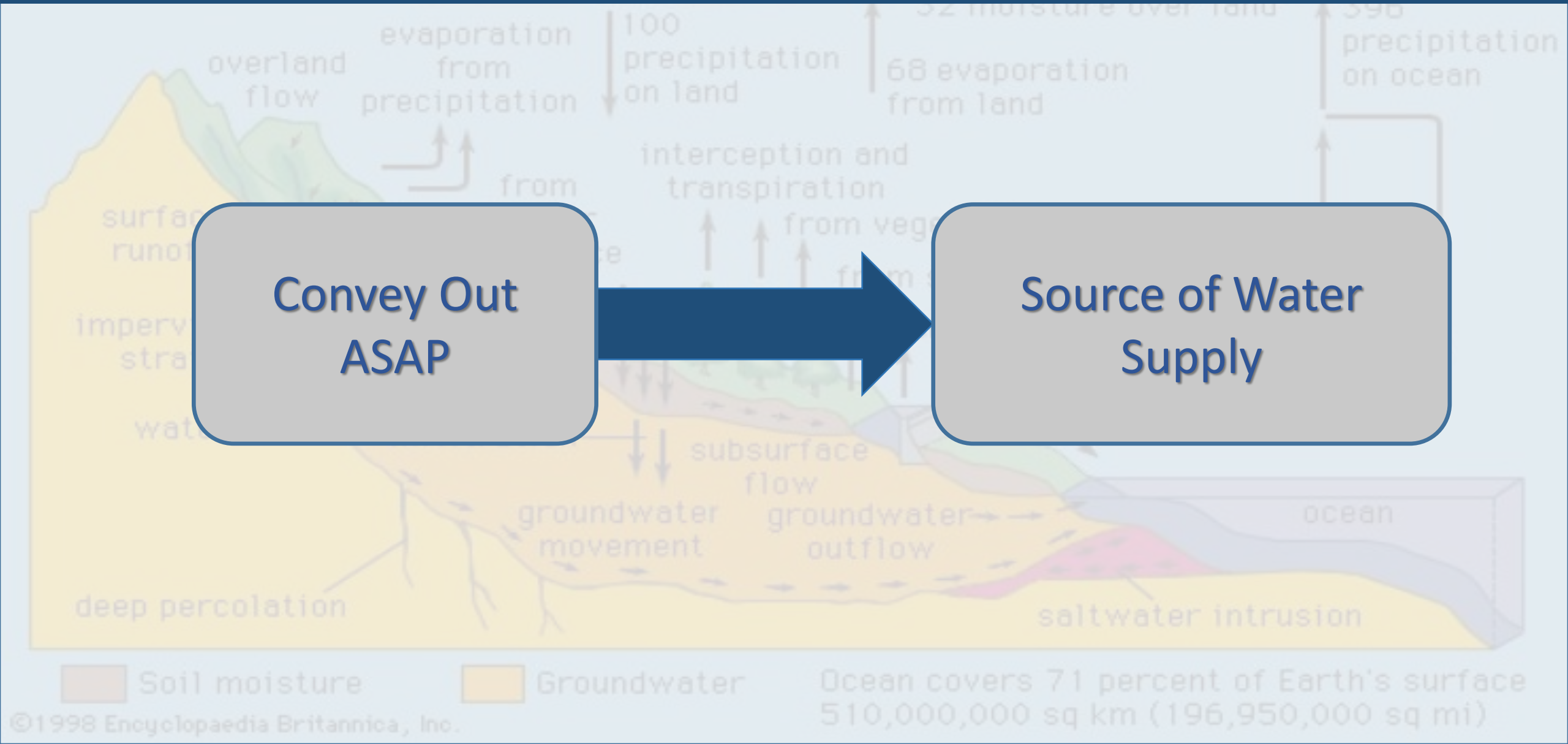
Concrete
Metal
Plastic



Green Infrastructure
Natural Systems

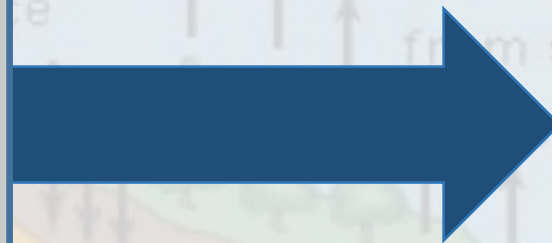


Stormwater Management

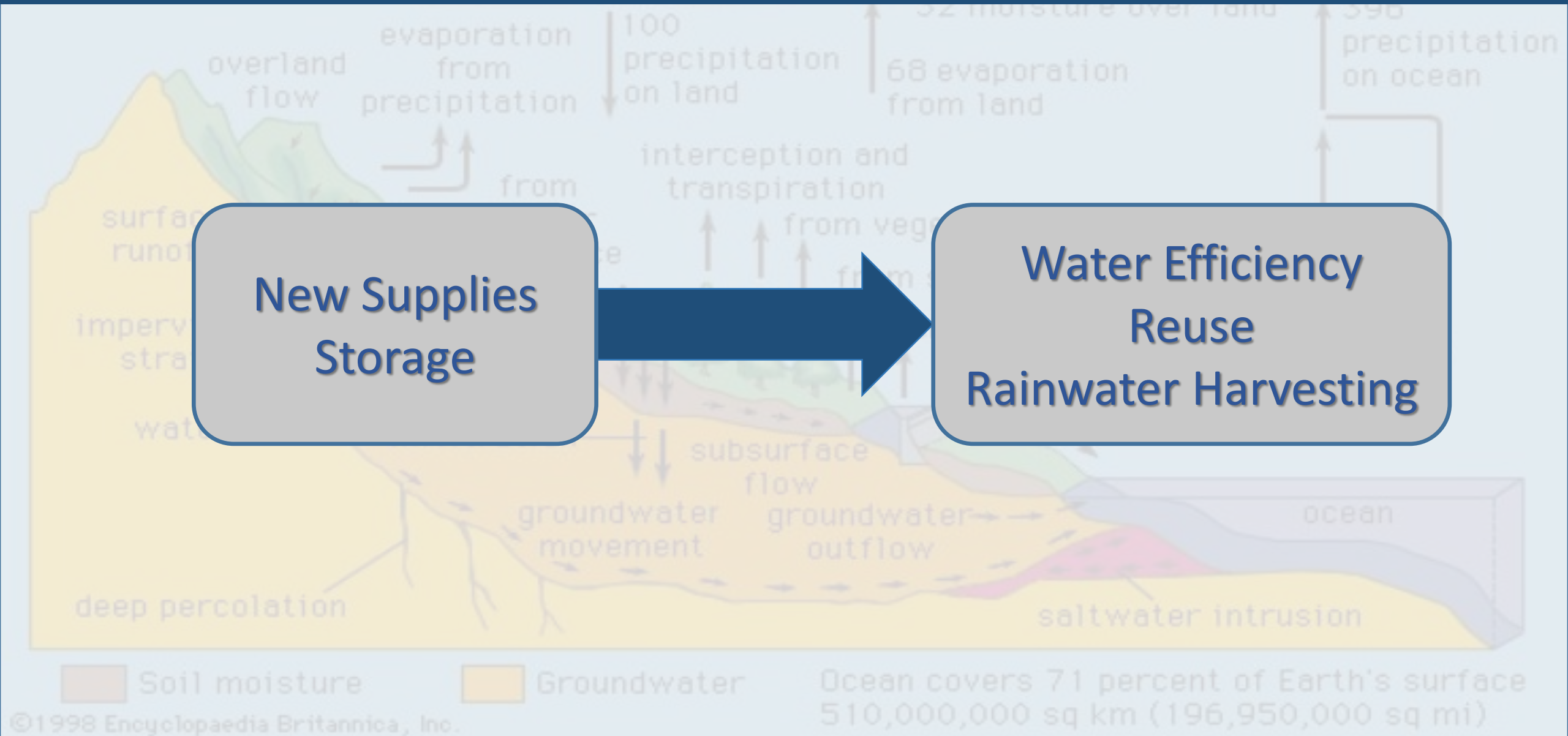


Increase In Water Demands

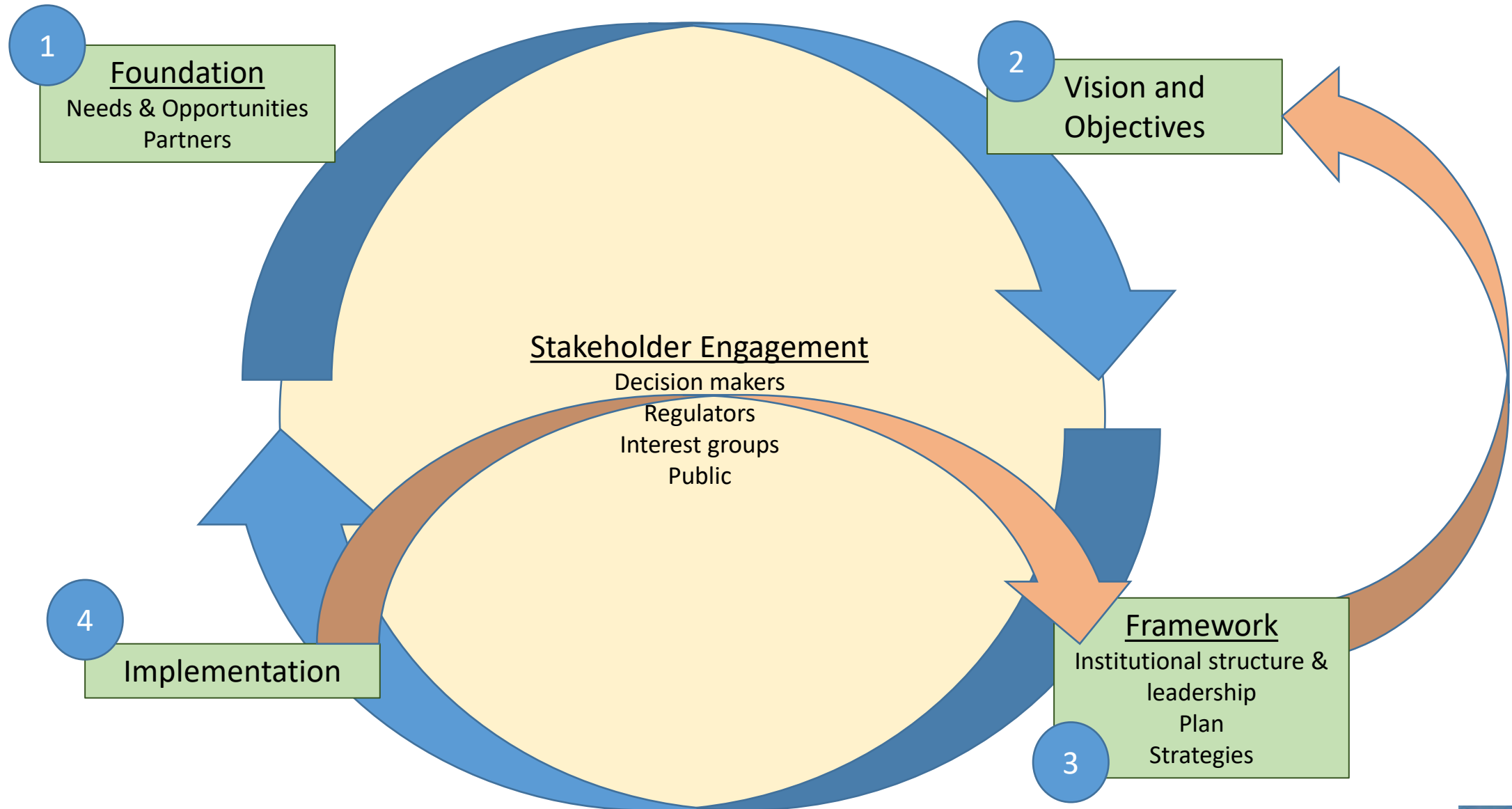
**New Supplies
Storage**



**Water Efficiency
Reuse
Rainwater Harvesting**



What Can This Look Like?



Enterprise Risk Management – Types of Risk



Hazard

- Property Damage
- Natural Catastrophe

Financial

- Asset Value
- Liquidity
- Credit

Operational

- Service Failure
- Human Resources

Strategic

- Reputation
- Competition
- Regulatory

Business Function Areas

Water
Resources

Environmental
Health and
Safety

Capital
Program
Governance

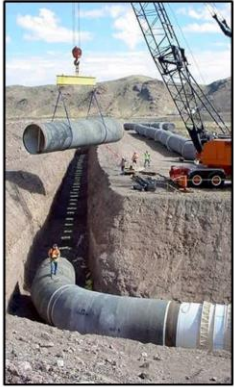
Engineering
Design
Standards

Infrastructure
Management

Distribution
System
Operations

Water Quality
Treatment and
Monitoring

Integrated Planning Efforts

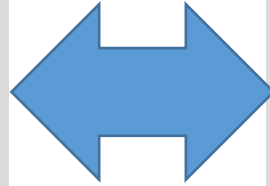


**A STRATEGY FOR 21ST
CENTURY RISK MANAGEMENT**
Integrating Climate Change into the Risk Paradigm at
SNWA and LVVWD

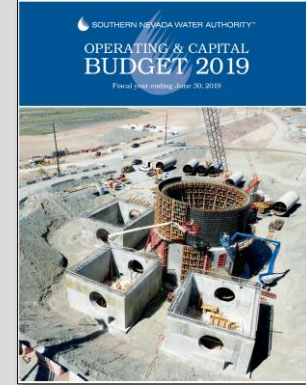
ABSTRACT

This report summarizes opportunities for Southern Nevada Water Authority and the Las Vegas Valley Water District to incorporate climate change projection information into existing programs and processes to reduce enterprise wide risks.

Keely Brooks, Alison Adams, Dan Haddock
September 2019



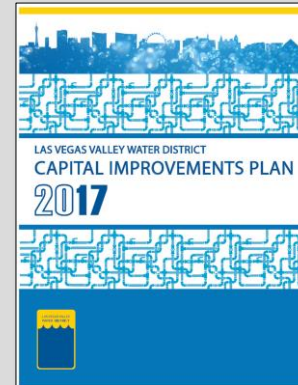
**Water
Resource
Plan**



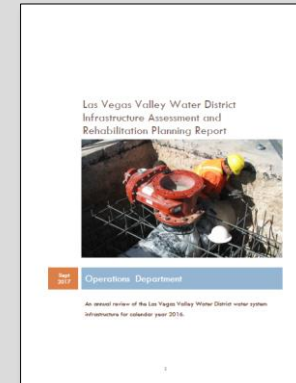
Budgets



Reference Climate Future



**Capital
Investment
Plan**



**Asset
Management
Plan**

Environmental Health & Safety

Risk	Actions	Progress
Heat Stress	Training – heat related illness and safety	On-going
	Hydration	On-going
	PPE/Shade	On-going
	Appropriate work/rest cycles	On-going
	Modify work schedules	Planned
Disease Vectors	Zika	On-going
	Monitor local and national health bulletins	On-going
	Enrolled in POD with SNHD	Complete
	Insect Repellant	On-going
	Training & Awareness	Planned
Air quality	Select more efficient generators & vehicles	On-going

WATER PLAN GOALS

Conservation

Colorado's Water Plan sets a measurable objective to achieve 400,000 acre-feet of municipal and industrial water conservation by 2050.

Land use

Colorado's Water Plan sets a measurable objective that by 2025, 75% of Coloradans will live in communities that have incorporated water-saving actions into land-use planning.



**INTEGRATING
WATER-SAVING
ACTIONS**

**AND LAND USE
PLANNING.**

Loan & Grant Programs

Examples of Colorado Water Plan grants for water conservation/land use:

- Land use/water trainings
- Smart metering
- Conservation-oriented tap fee best practices
- Large scale landscape retrofits
- Direct potable reuse regulatory framework
- Denver One Water Plan

**\$1.75 million
in Fiscal Year
2019-2020**



COLORADO
Colorado Water
Conservation Board
Department of Natural Resources

Water Efficiency & Land Use Planning Integration

- **Babbitt Center for Water and Land Policy**
- **Implementing Water Conservation and Demand Management through Land Use Planning Guidance Document**
- **Growing Water Smart**
- **Colorado Water and Land Use Planning Alliance**



COLORADO
**Colorado Water
Conservation Board**
Department of Natural Resources

WRAP UP

