WATER FOR GROWTH

LAC: Circular Economies in the Industry Sector

The Circular Economy of Water: Water-Efficiency in the Industrial Sector

August 28, 2017

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WATER FOUNDRY

WHY WATER?

2050

60%

80%

55%

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WHAT IS THE NEW NORMAL?

CHALLENGES

PUBLIC POLICY
- Over allocation
- Poor data
- 19th/20th century policies

ENERGY WATER FOOD NEXUS
- Increased demand
- Siloed solutions

INFRASTRUCTURE
- Underfunded
- Price of water

TRENDS

DIGITAL WATER
- Inexpensive sensors
- Internet of things
- Big data
- Artificial intelligence

ONE WATER/CIRCULAR ECONOMY
- Efficiency
- Reuse/Recycling
- Energy/Nutrients

DECENTRALIZED/OFF GRID
- Air moisture capture
- POU/POE treatment

NEXUS SOLUTIONS
- Water funds
- Incentives
- Green bonds
- Prize competitions

INNOVATION
- Exponential tech
- Partnerships
- Funding/financing
- Business models
- Water trading

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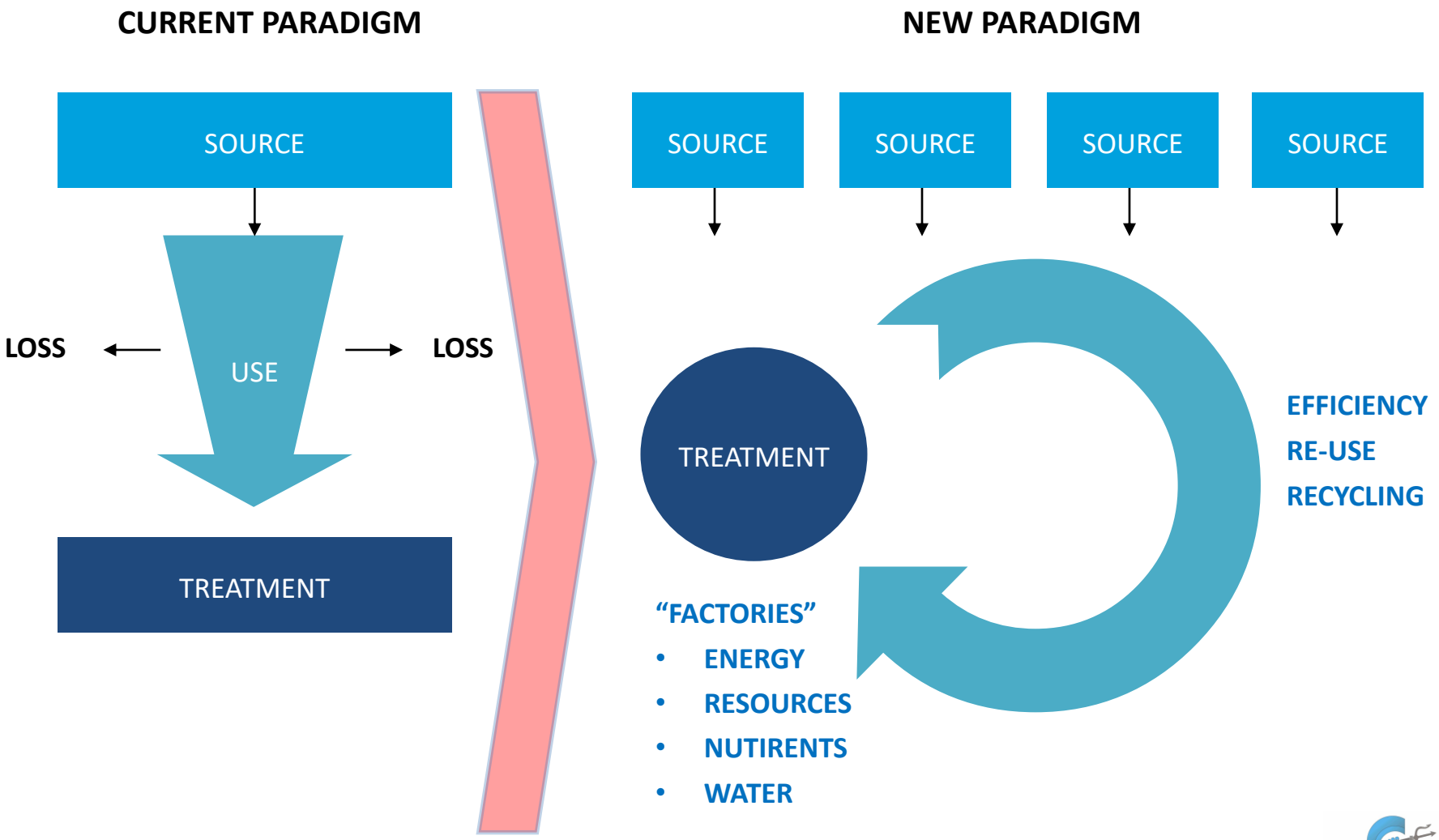
THE CIRCULAR ECONOMY DRIVES INNOVATION AND VALUE



Adapted from Lux Research Water Intelligence 2008

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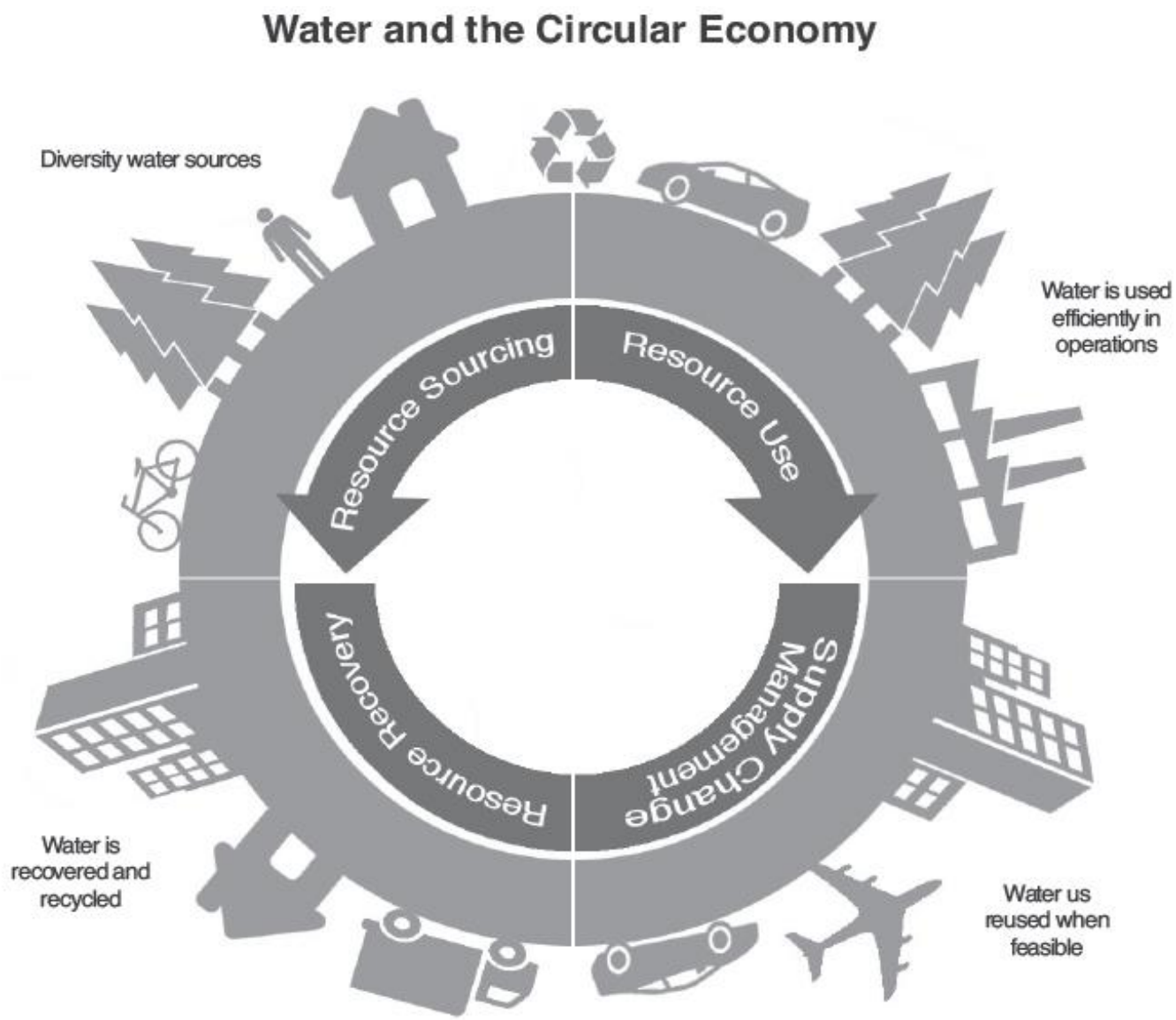
WATER AND THE CIRCULAR ECONOMY



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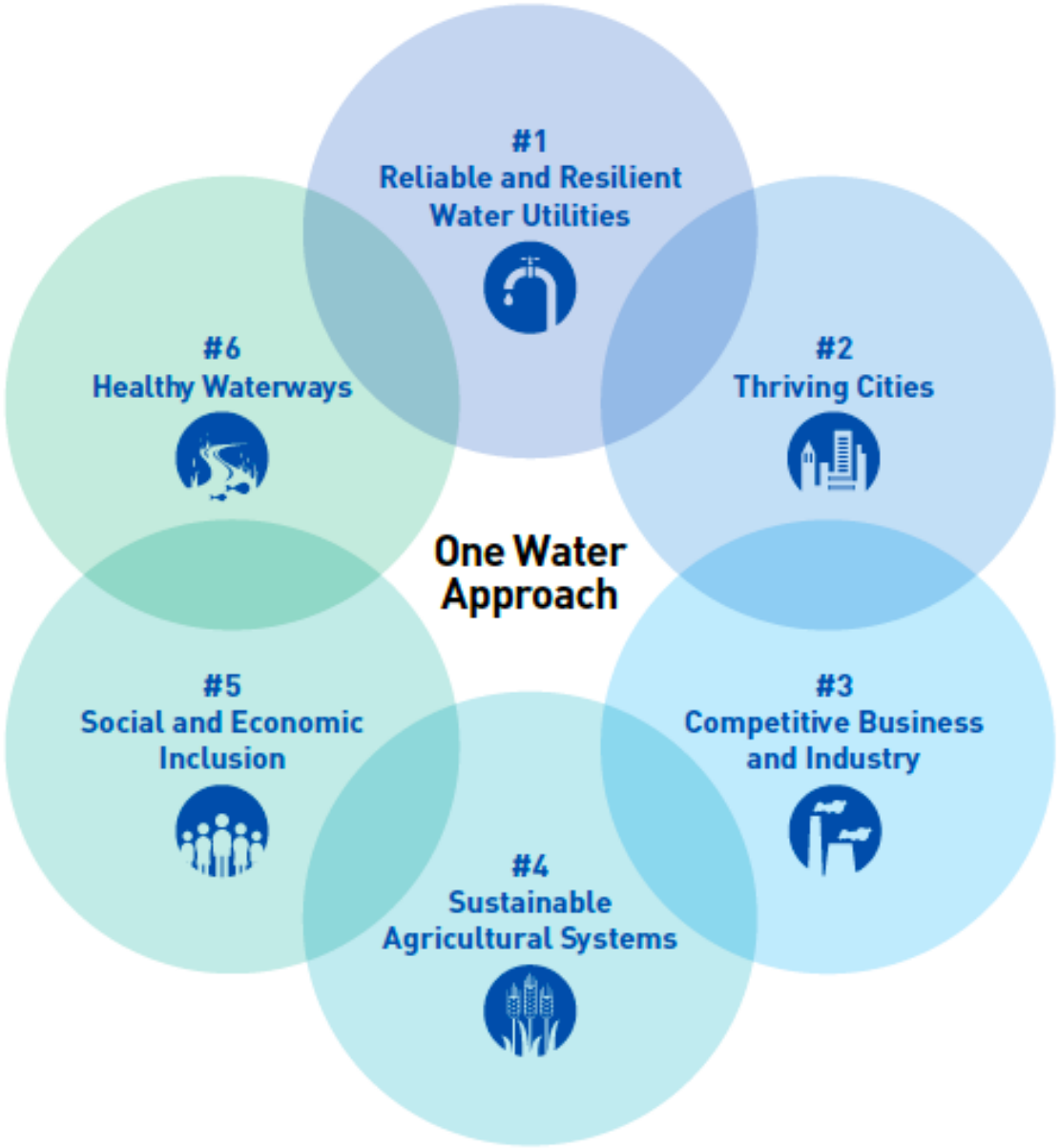
US WATER ALLIANCE – ONE WATER



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INDUSTY - CORPORATE WATER RISK

	Supply Chain	Operations	Product Use
Physical	Water scarcity drives up input prices (~2%-20%)	Increased capital expenditure on water treatment, extraction or alternative technologies raises costs	Non-availability or scarcity of water required for using product or service limits growth
Regulatory	Suspension or withdrawal of supplier's water license or discharge permits disrupts supply chain	Reallocation to more urgent needs during drought disrupts operations	Restrictions on use of particular products or services due to water intensity raises costs or checks growth
Reputational	Responsibility "by association" for suppliers' water pollution damages brand or reputation, hinders growth	Competition with household demands, or pollution incidents, damages brand or reputation, hinders growth	Public outcry regarding water intensity of product damages brand, reputation, hinders growth

Financial Impact

- **Lost revenue**
- **Higher costs from:**
  - Supply chain
  - Changes in production
  - Capital expenditure
  - Regulatory compliance
  - Increasing price of consuming or discharging water
- **Delayed or suppressed growth**
- **Potential higher cost of capital**

1 – "Watching Water," JP Morgan Chase Global Equity Research, April 2008.

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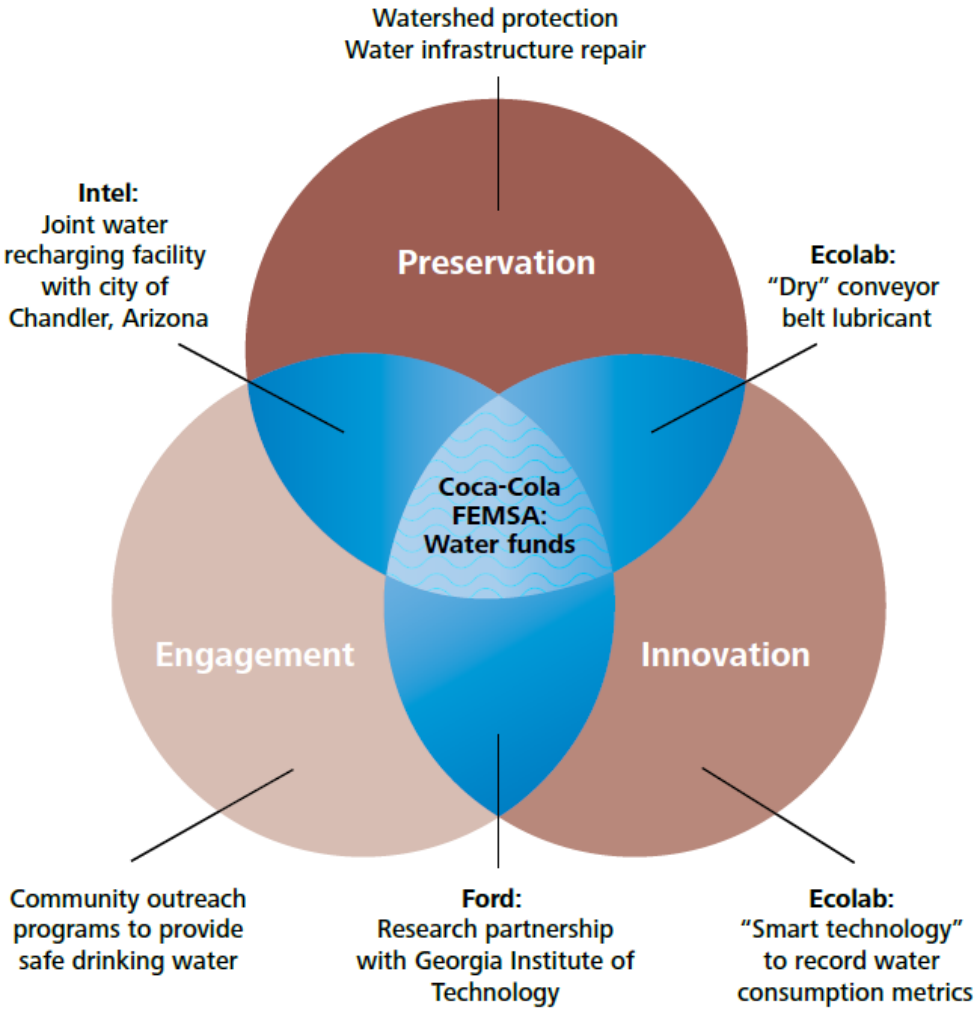
WATER STEWARDSHIP - HOW TO MITIGATE THESE RISKS?

- **Incorporate water risk** into 'traditional' corporate risk management processes
- **Quantify the "real" value** of water to the business
- **Understand the energy-water nexus** and its potential business implications, set targets across the value chain
- **Increase** focus on **engagement and innovation**
- **Look for opportunities** in the overlaps
- **Make a public commitment** to water stewardship
- **Practice "radical transparency"** about water and seek opportunities to collaborate – or clear the (internal) path for collaboration



Getting Ahead of the "Ripple Effect" A Framework for a Water Stewardship Strategy. W. Sarni, Deloitte University Press. 2013

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A LICENSE TO GROW STRATEGY

No strategy

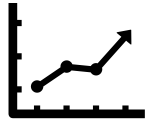
- Water scarcity not acknowledged as an issue
- All resources treated equally
- Cash flows heavily weighted
- Market price of water governs decisions

Efficiency strategy

- Water scarcity as a driver of cost
- Consider cost of acquisition and use of water
- Heavily weight profitability risk
- Focus on water conservation
- Set internal water efficiency goals

Risk Strategy

- Manage water scarcity risk at the facility or business-unit level
- Pursue stakeholder engagement to improve water access
- May calculate full cost of water
- May participate in public policy formulation
- Ad hoc investment in technology innovation
- "Social license-to-operate" risks heavily weighted



LICENSE-TO-GROW STRATEGY

- **Quantify *value* of water**
- **Proactively drive business "ecosystems and "aligned action"**
- **Innovation - develop product/service offerings that address water scarcity**
- **Manage water scarcity as a platform for growth**
- **Participate in water-related policy development**

INCREASING VALUE AND COLLECTIVE ACTION

Fueling Growth: You Can't Always Buy What You Need. W. Sarni. Deloitte University Press. 2014.

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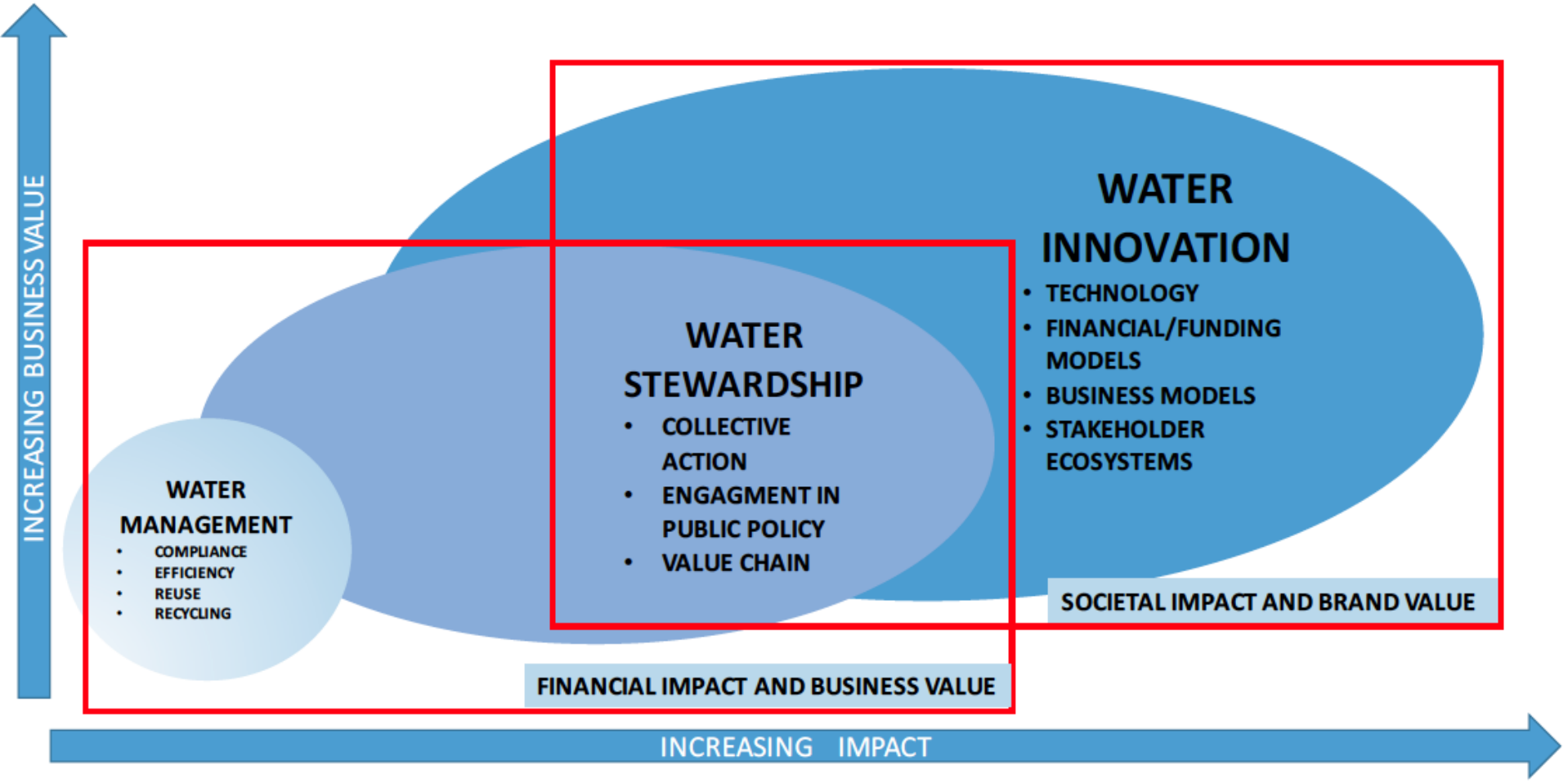
CREATING ABUNDANCE THROUGH INNOVATION



TRENDS IN LAC: FACTORS OUTLINED BY INTER-AMERICA DIALOGUE

1. ““Disruptive” technologies in production, employment, well-being, governability, and human relations.

2. Natural-resource scarcity affecting water, food supplies, energy, and minerals.

3. Demographic changes and displacement of power, new markets, rising middle classes, and migration.

4. Urbanization and growth of cities, population concentration, demands for infrastructure and basic services, quality of life, and competitiveness of cities.

5. Climate change, its effect on agriculture, “green-growth” opportunities, citizen awareness, and behavioral change.

6. Democratic governability, impact of new technologies in connecting citizens, forging social relations, improving transparency, and strengthening security.”

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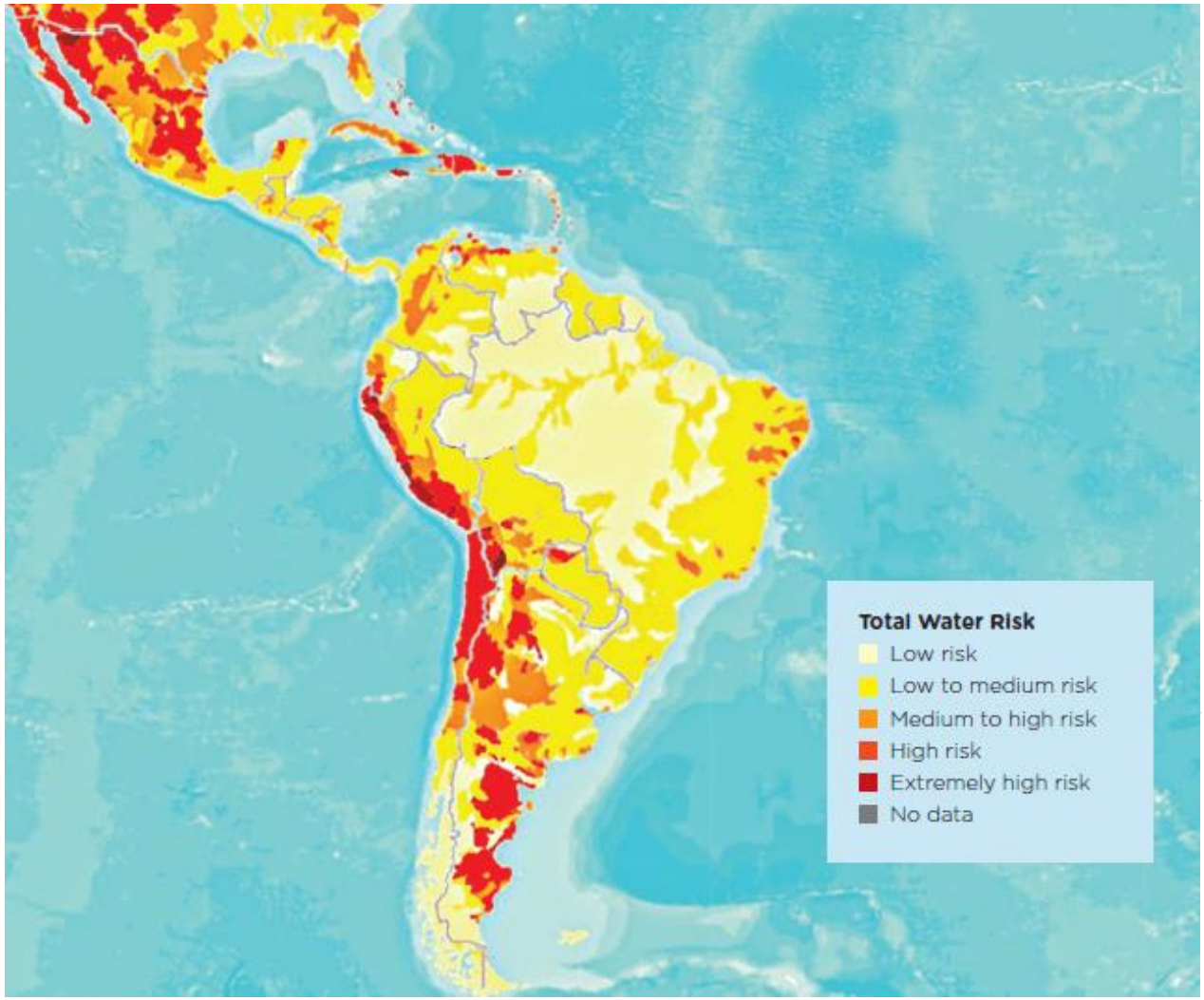
OVERVIEW OF LAC WATER RISK - WRI



Mexico

- Estimated gap between supply and demand in Mexico by 2030 would be ***23 billion cubic meters***
- A cost of ***USD 4.16 billion*** annually.

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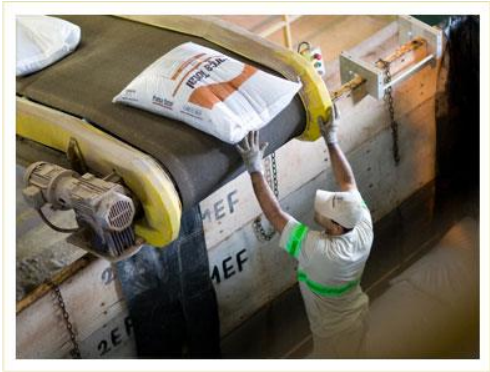
CIRCULAR ECONOMY STRATEGY - ECONOMIC BENEFITS

Lower Operation and Maintenance Cost



Resource Recovery

Reduced Energy Costs

Reduced Water Cost for Consumer

Economic Opportunities from Preserving Natural Capital

CIRCULAR ECONOMY STRATEGY - ENVIRONMENTAL BENEFITS

Conserve Water

Improve Agriculture Production

Reduce Carbon Emissions

Protect Biodiversity

Reduce Erosion

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CIRCULAR ECONOMY STRATEGY - SOCIAL BENEFITS

Wastewater Management

Improve Health and Sanitation

Increase Education and Engagement

Connection with the Environment

Increase Public-Private Partnerships

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HOW TO ADVANCE THE CIRCULAR ECONOMY - CHALLENGES

Perception of Wastewater

Return on Investment

Measuring Benefits

Silo Thinking- Practices in Isolation

Infrastructure Development

Public Policy Challenges

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Leadership From Within the Water Industry

- Innovative Financing Models
- Data Monitoring and Analytics
- Cost-Benefit Analysis
- Engaging the Public to Drive Policy and Best Practice
- Private Sector Public Policy Influence
- Local and State Governments Develop Public Policy

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Thank You

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