

Sustainability

One Resource/One Water/Zero Waste



(Elements)

Economy

Environment

Equity

Affordability + Accountability — Risk + Resilience — Equity + Empowerment

*Operational
Excellence*

*Public Health +
Environment*

*Workforce
Development*



(Approach)

Engagement + Partnership

Community Centered

Customer Focus

Resilience

Heavy rain events & flood risks
More frequent heat waves
Water supply & demand
CSOs & urban run-off
Shocks & stressors
Sea level rise

Livability

Biodiversity & Wellbeing
Affordability & Equity
Cohesive Communities
Aging Populations
Green Jobs

SHOULD I BE WORRIED?

Not enough ...





...and inequitably, too much



Systems built for drips...



...not downpours



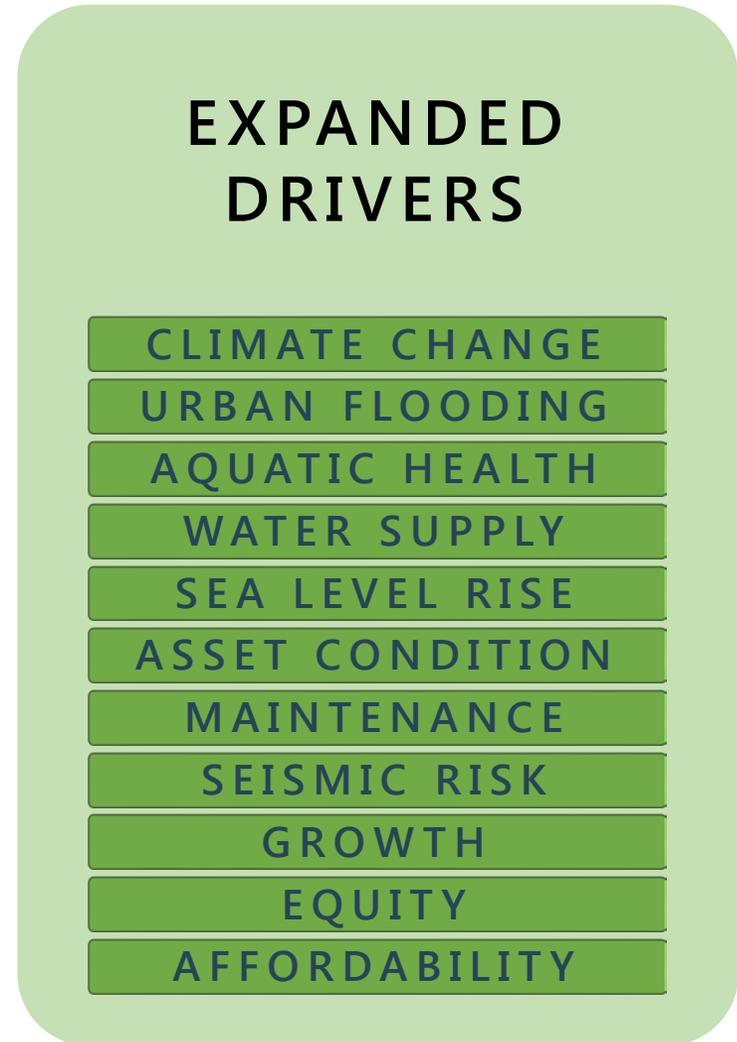
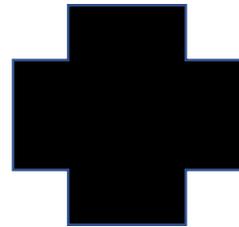
Alki Sea Wall



Rising tides...

...and surging seas





Water Management Drivers

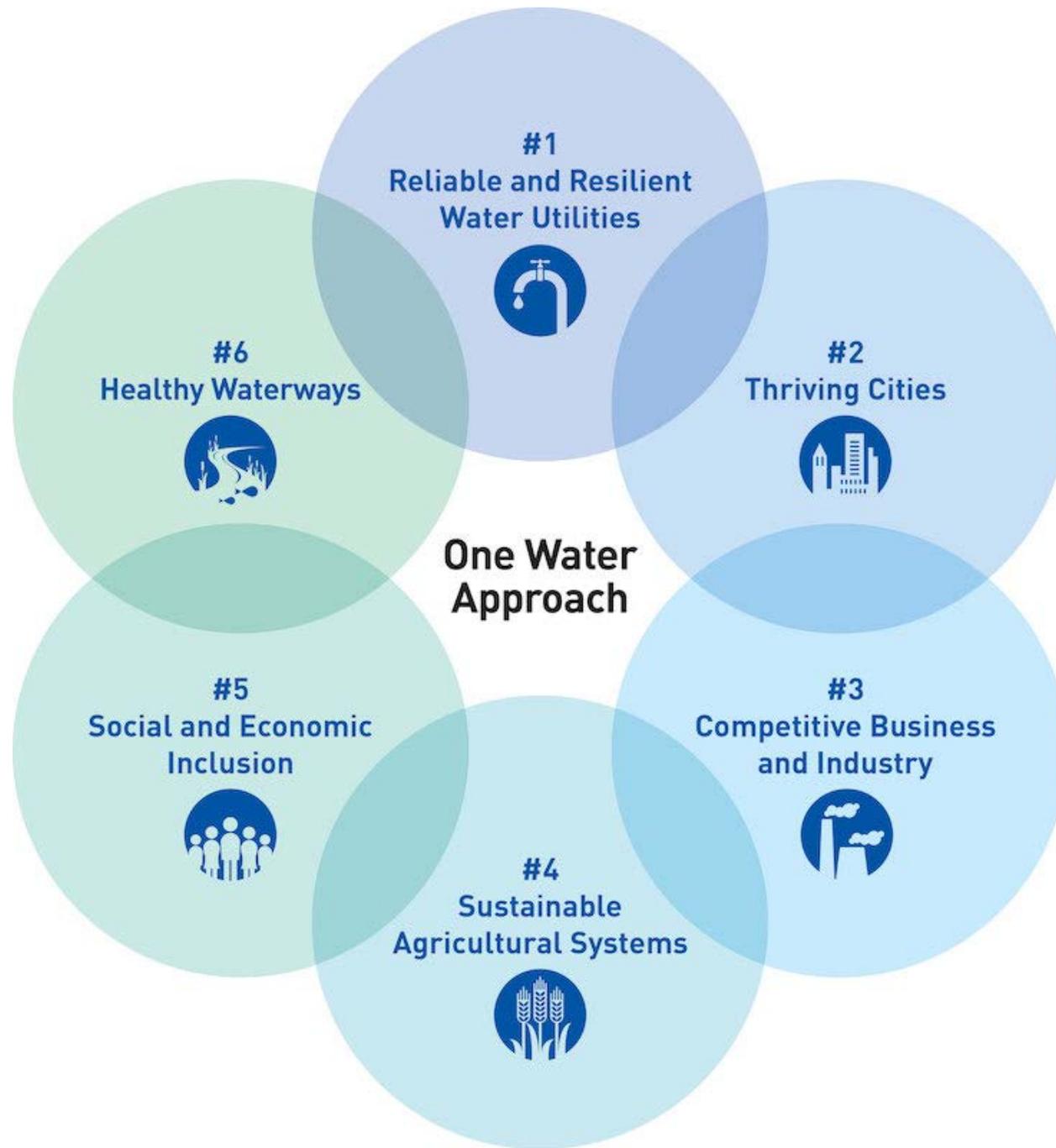
ALL WATER IS ONE WATER



ONE WATER:

“No matter who we are, where we live, or what we do, water connects all of us. When we embrace the belief that water in all its forms has value...the full water life cycle can be optimized to build strong economies, vibrant communities, and healthy environments.”

“All around the country we are seeing silo-busting examples of integrated and inclusive approaches to water resource management. These approaches exemplify the view that all water has value and should be managed in a sustainable, inclusive, integrated way. We call this perspective One Water.”





Innovative Wastewater + Stormwater Management, Portland's Lloyd Center District



Innovative Flood Risk Management: Copenhagen Cloudburst Management Plan



Green Infrastructure and Workforce Development: Philadelphia's PowerCorpsPHL



Innovative Flood Risk Management: Oro Loma Sanitary District Horizontal Levee, San Francisco



Looking northwest at 10:20 am January 27, 2019 Olympic Village



Beneath Cambie Bridge



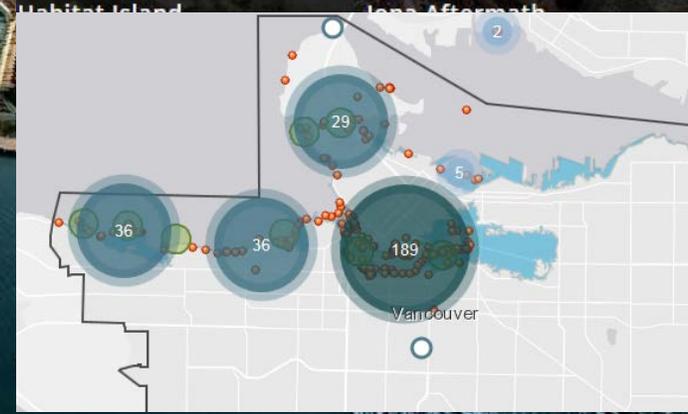
South East Cambie Bridge



Habitat Island



Islands Aftermath



Help document our changing shorelines.
 Upload your waterfront photo to
vancouver.ca/kingtides

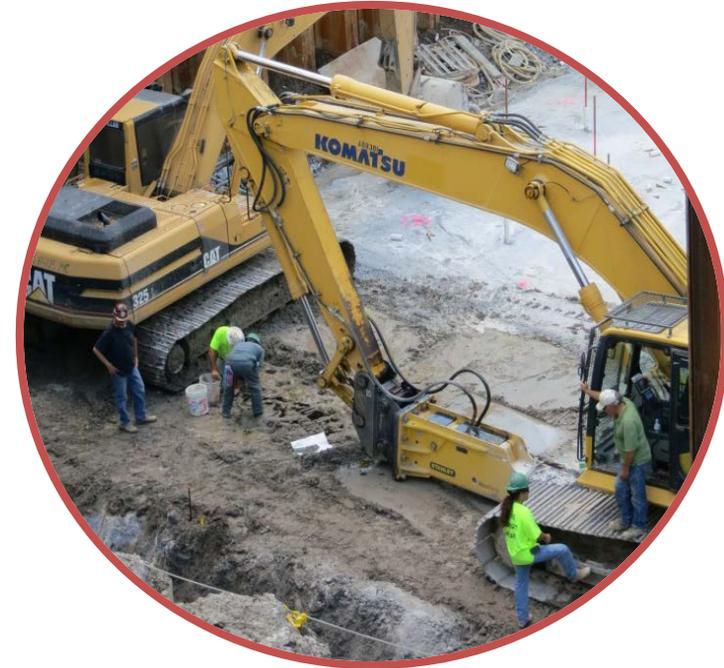
King Tides projected on:

- Dec 5, 7:38am
- Dec 6, 8:27am
- Dec 7, 9:16am
- Dec 8, 10:05am
- Dec 9, 10:53am

Co-Creation, Crowd Sourcing: Sea Level Rise Story Map, Vancouver

Social/Equity Benefits

- Recreation
- Public Health
- Crime Reduction
- Community Benefits



Environmental Benefits

- Fishable & Swimmable
- Habitat Enhancement
- Air Quality
- Energy Savings
- Climate Adaptation + Climate Mitigation



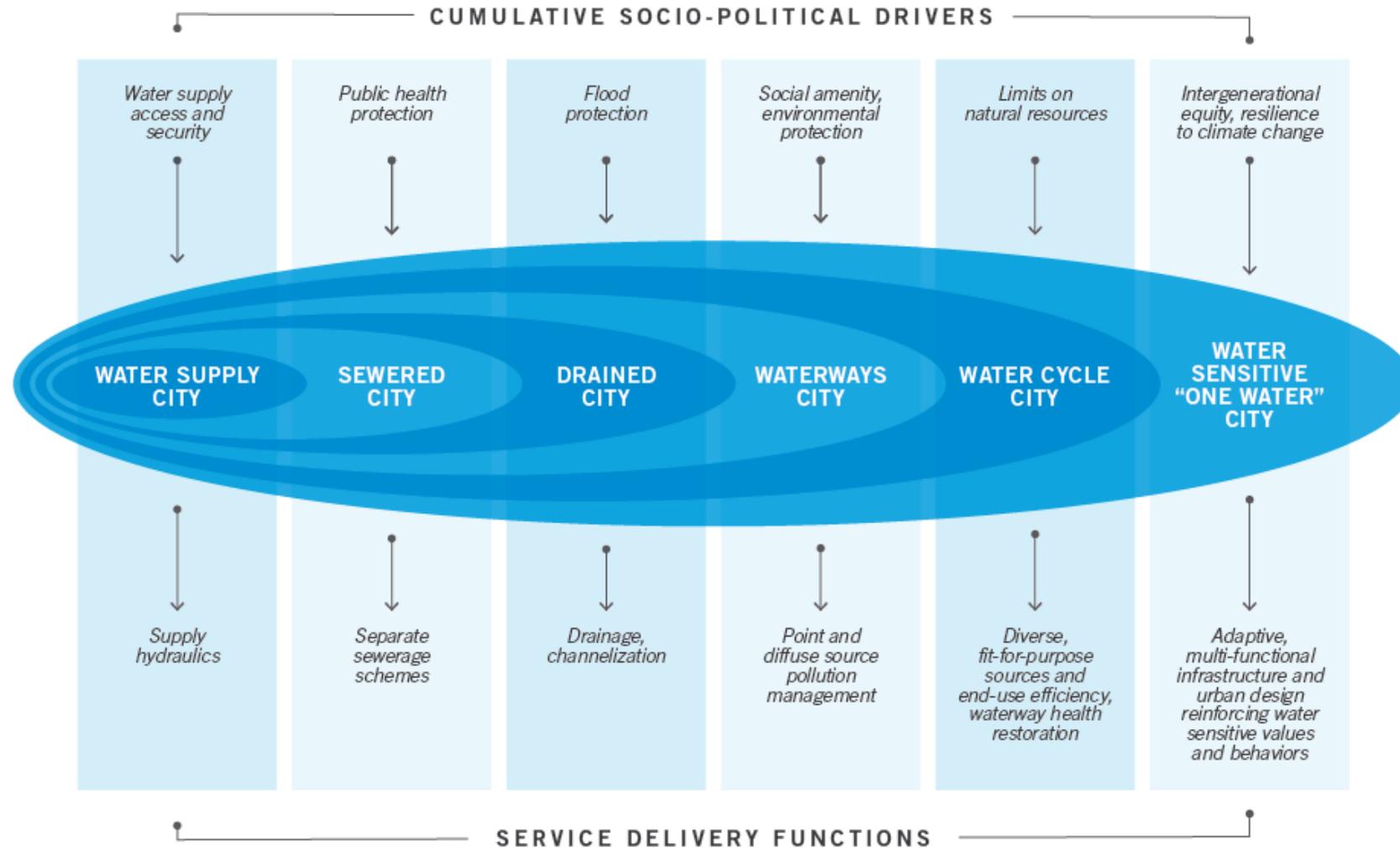
Economic Benefits

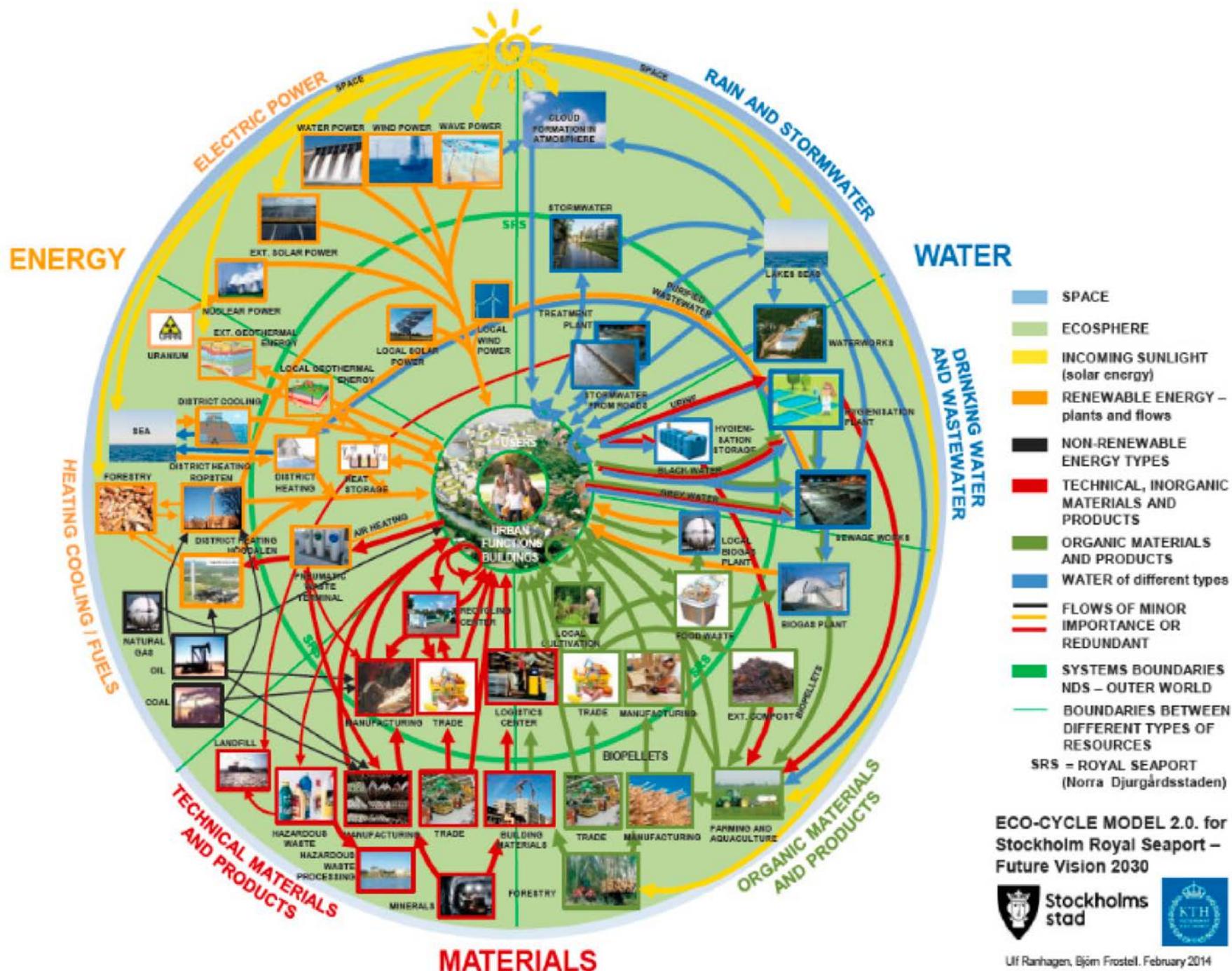
- Property Values
- Job Creation
- Competitive City
- Green Industry Growth
- New workforce development tools and programs
- Avoided social costs

Large-scale, centralized infrastructure and institutions. Priority given to controlling environmental variation through technocratic engineering.

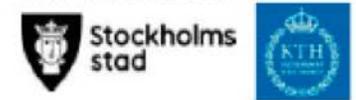
TRANSITION

Integrated, distributed and flexible infrastructure and institutions. Priority given to maintaining resilience through adaptability and reflexivity.





ECO-CYCLE MODEL 2.0 for Stockholm Royal Seaport – Future Vision 2030



Ulf Rånghagen, Björn Frostel, February 2014



Building Circular Economy: From One Water to Zero Waste

Principle: Making waste and toxic pollution obsolete through informed purchases, keeping products and materials in use and regenerating natural systems.

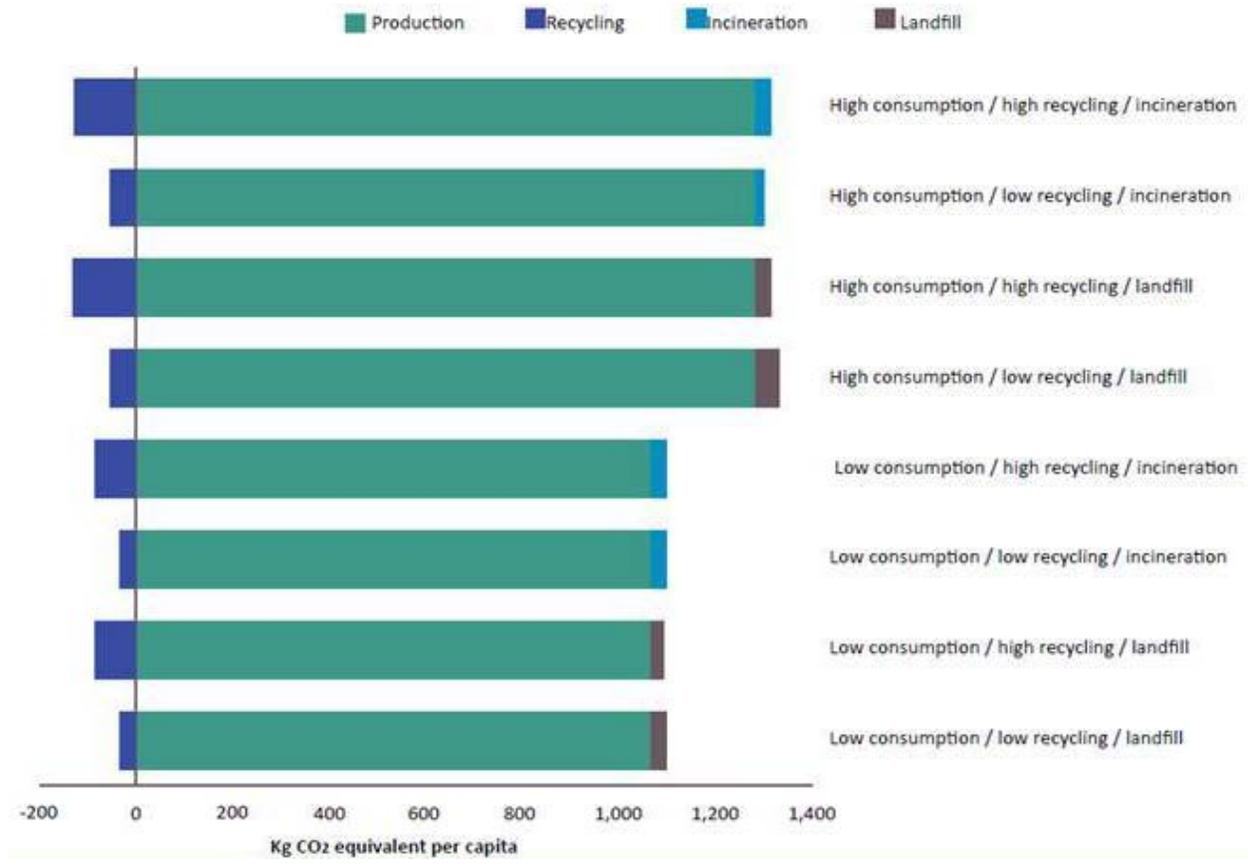


A Materials Management Approach

- All durables must retain their value and be reused but never discarded or down cycled.
- All consumables should be used as often as possible before safely returning to the biosphere.
- Natural resources may only be used to the extent that they can be regenerated.

Tackling a Big Contributor to GHG Emissions

Illustrative Example - Production Emissions and Waste System Emissions (Impacts per person)



Keeping It Local Through Virtuous Partnerships

1. Ugly Fruits and Veggies
2. Food Rescue for people experiencing food insecurity
3. Composting

“Compost feeds the soil creatures that keep soil loose and fertile. Soil life also protects plants from diseases and helps hold water and nutrients. You’ll save money on water, fertilizer and pesticides, and have a healthier yard too.”

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Community Centered

Customer Focus

Triple Bottom
Line Evaluation

+

Lifecycle Costing



Healthy Community

+

Healthy Utility

[Regulations + One Water]



Build trust through compliance

+

Develop viable alternatives based on sound data,
analysis, and planning

*No changes to compliance pathway
until regulators say so*