Sustainability by Design, Design with Nature: turning "green" into "gold"

3 Green Value case studies:

- Willowbrook Subdivision
- UVic
- Dockside Green

Now what, Then what

Urban Planning on a Watershed Scale

Enabling Business to
“Do The Right Thing”

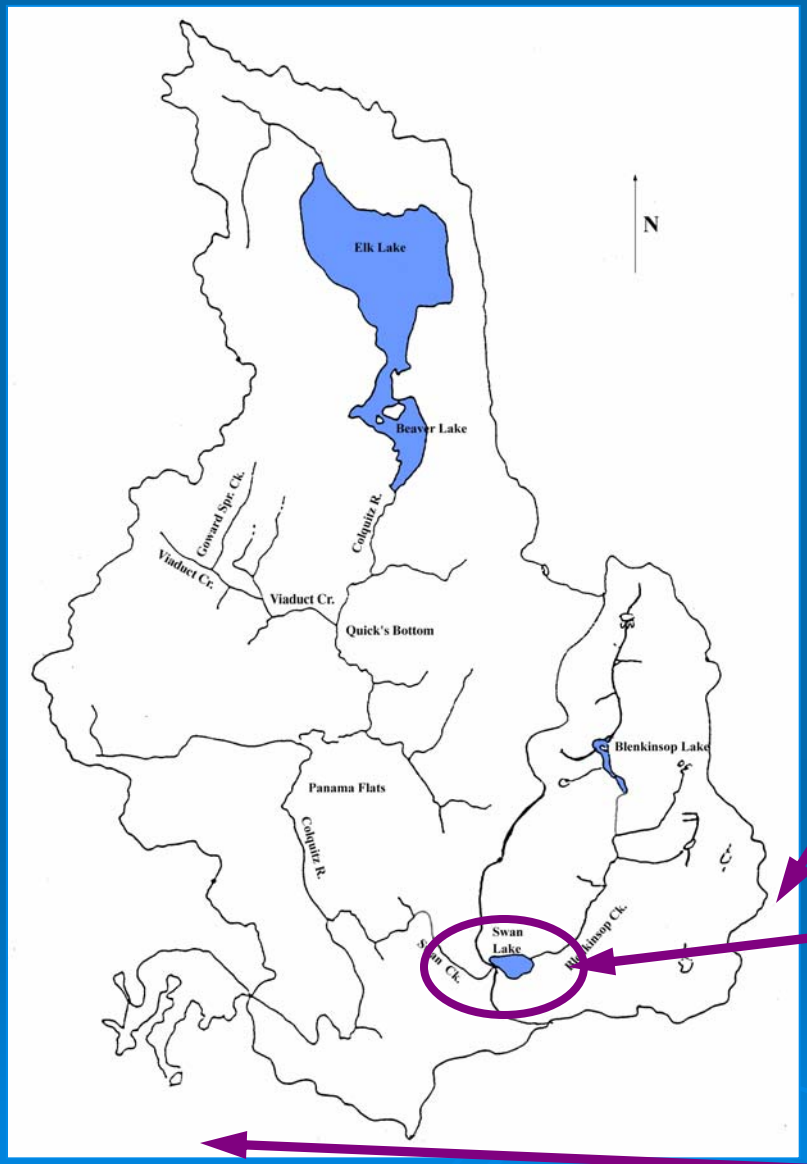
Smart Municipal Development

Conventional
(Engineering)

"Green"
(Environmental
Engineering)

Ecological Approach
(Engineered Ecology™)

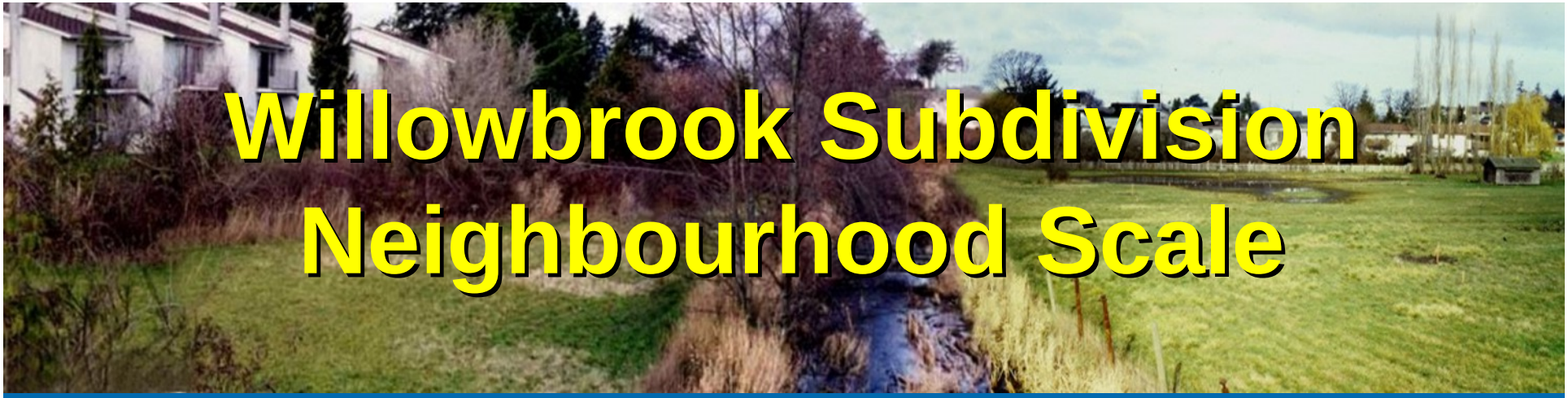
Colquitz River Catchment, Saanich, B.C.



UVic

Willowbrook

Dockside Green

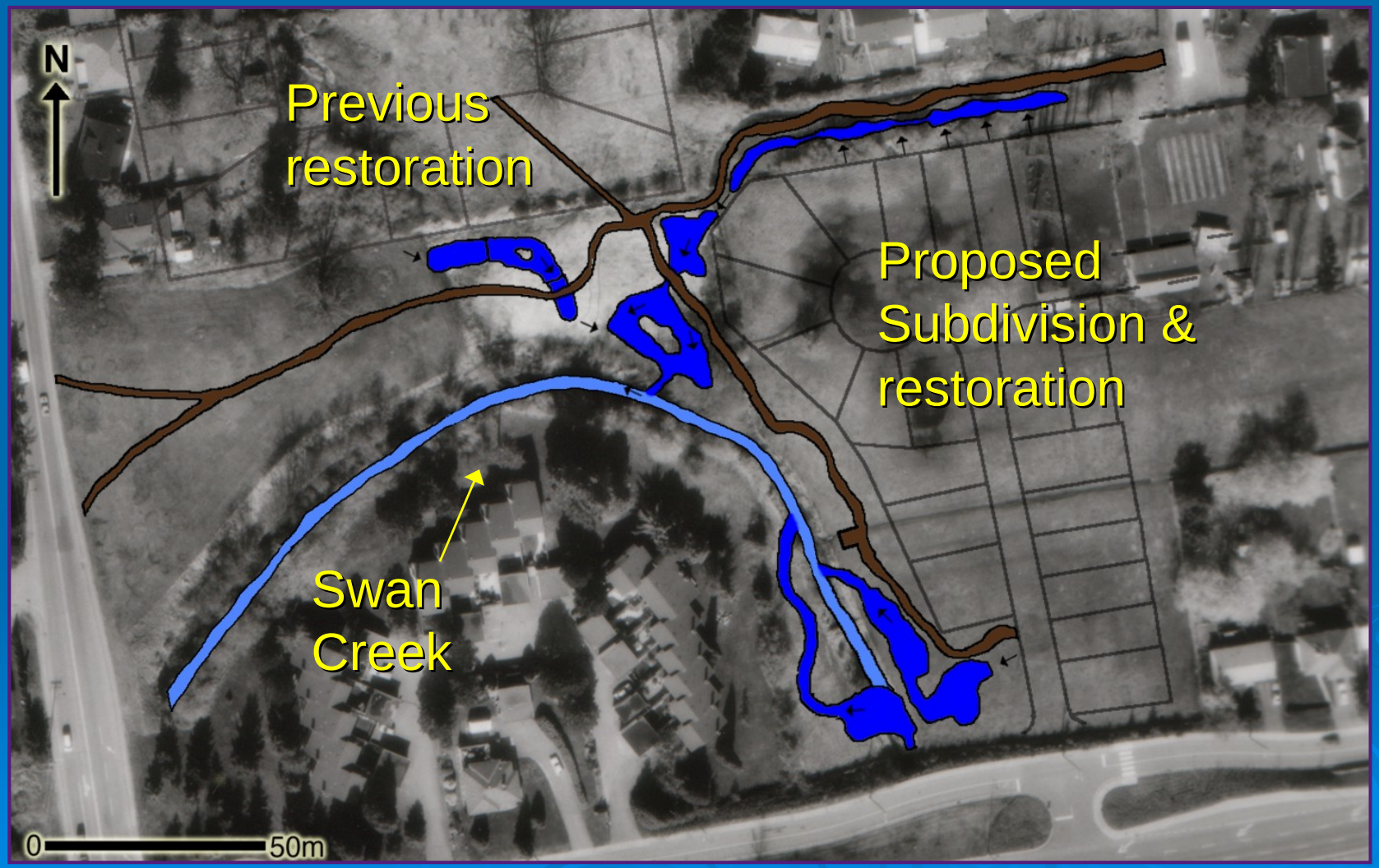


Willowbrook Subdivision Neighbourhood Scale

- Degraded stream
- Stormwater bylaw prompted restoration
- 31 homes proposed within the 200 year floodplain
- Community requested restoration

Streams are the arteries of the landscape

Willowbrook: The Plan



Summer 2000

May 2004

Capture, Store, Beneficial Use
May 2006

Willowbrook: The Reality

Willowbrook : Green Value

- Previous proposals failed entirely
  - Restoration approach secured community support
- Approvals in 60 days versus 18 months
  - Savings paid entire costs of project
- Didn't maximise value
  - Houses "ignored" the green benefit

Comments from the Developer

- Got 50% more density due to “mixing the environment with affordability”
- “purchasers loved the park idea with stream and walkway”
- “I think we got more lots in the end of the day because council liked the idea of rebuilding the stream that was once there”
- “I would do the Willowbrook neighbourhood again at any time”
- 3 new developments using Green Value IDP

“Campus” Scale

1. University of Victoria
2. Dockside Green
3. Southeast False Creek - Olympic Village

University of Victoria

Campus Master Development Plan

Watershed / Rainwater Mgmt. Plan

University of Victoria

Treated Wastewater recycling:

- Medical Science Building
  - 2,000,000 L/yr (528,344 US gal/yr) @ $1.20 / 1000 L= $2400/yr
  - 69.9% reduction in water use (100%)
- Engineering Computer Science Building
  - 2,716,411 L/yr (717,600 US gal/yr) @ $1.20 / 1000 L= $3260/yr
  - Water-water heat pump
    350,000 KwH/yr @ $.05/ KwH= $17,500/ yr
  - Continuing Studies/ Residence (future-proofed)
  - All new buildings & facilities

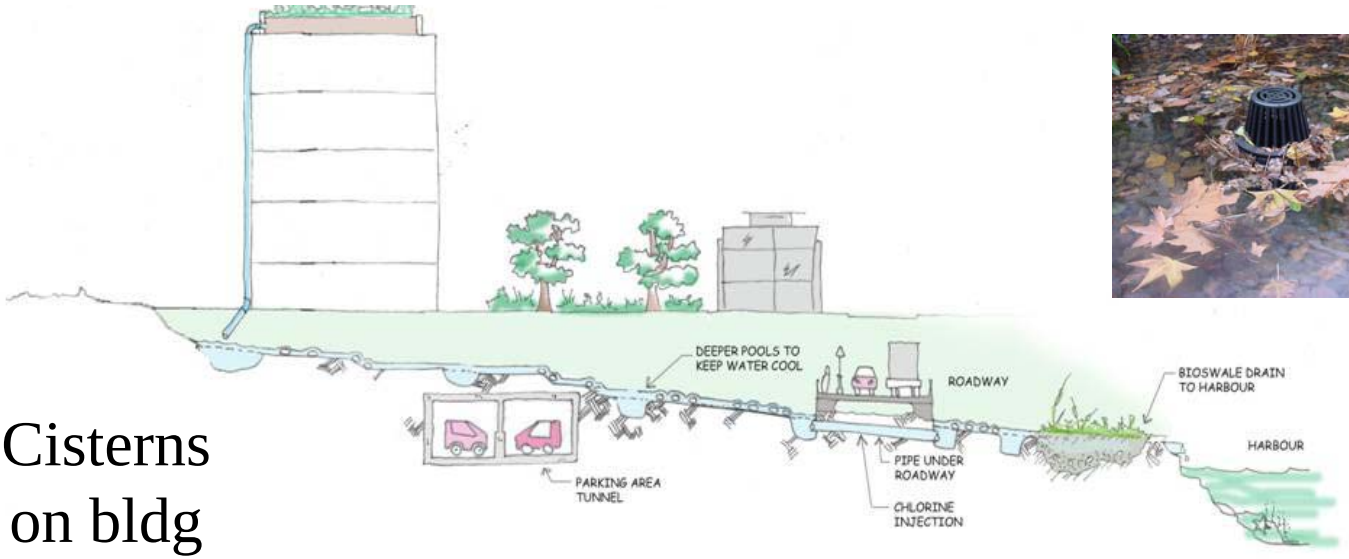
- Combined water and energy savings= $23,160/ yr.
- Savings will increase as water and energy costs increase
- Reallocation of existing capacity in the mains
- Defer cost of expanding drinking water reservoir
- Future-proofed against climate change

Dockside Green: Existing Site

VanCity Enterprises Ltd. Windmill

Dockside Green: Conceptual Design

Problem: Potable Water needed for Creeks/Ponds



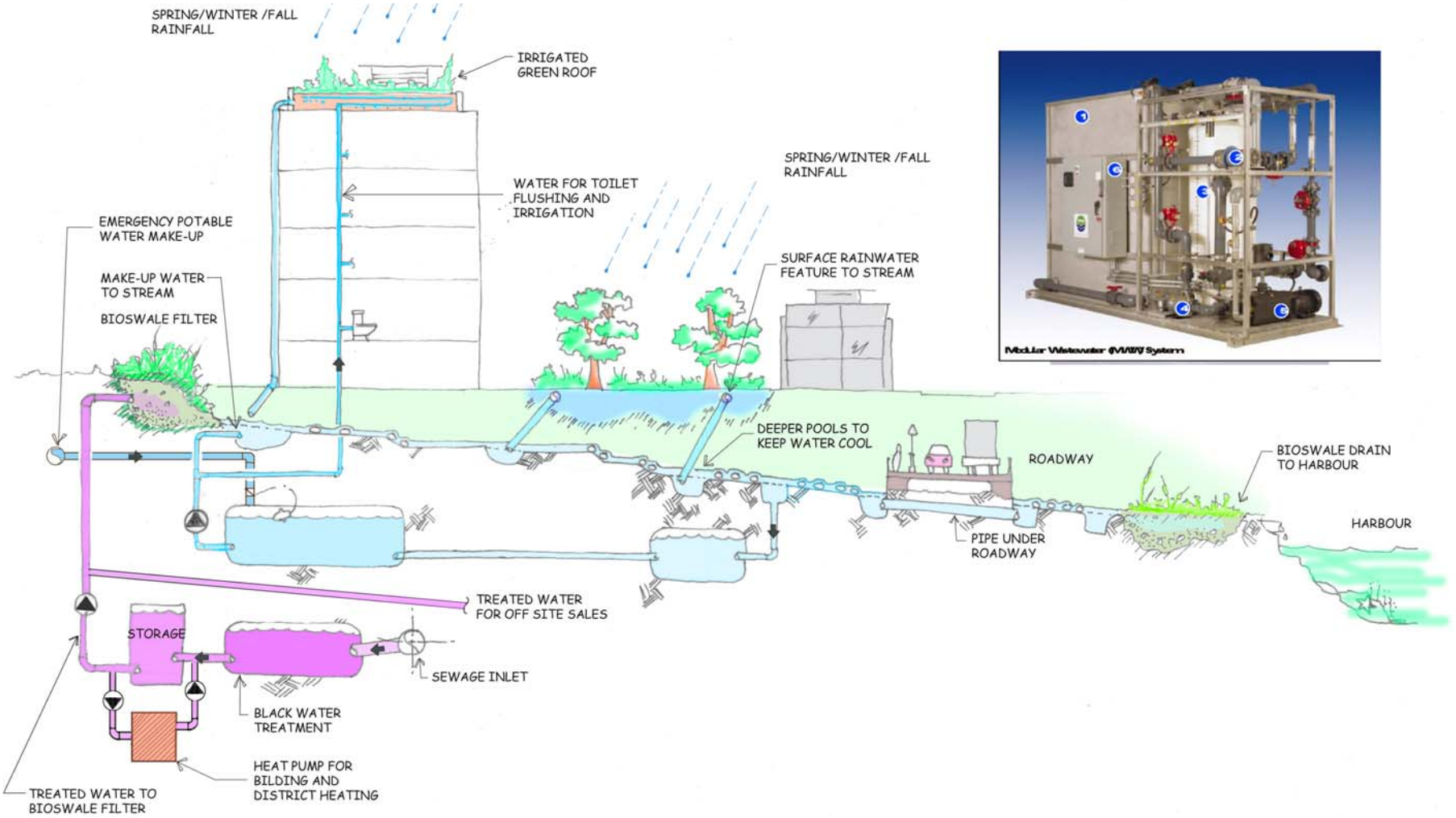
Cisterns on bldg

Sewage Treatment

Social: Designed for Public Viewing Environmental: sewage treatment

Economics: Increased marketing/jobs

Problem: not enough rain water (dry summers):



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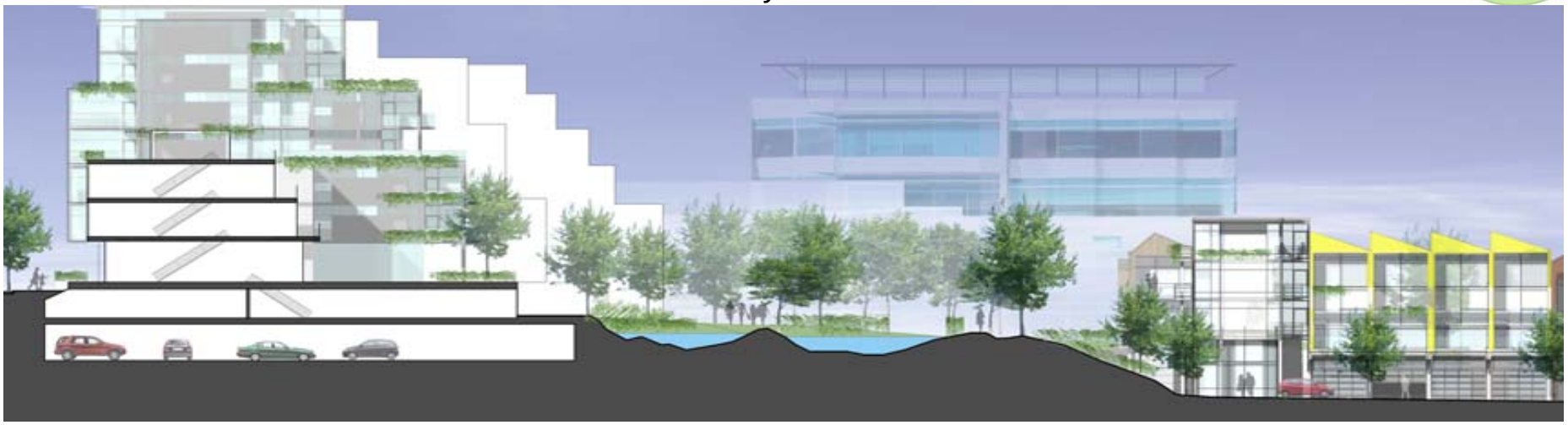
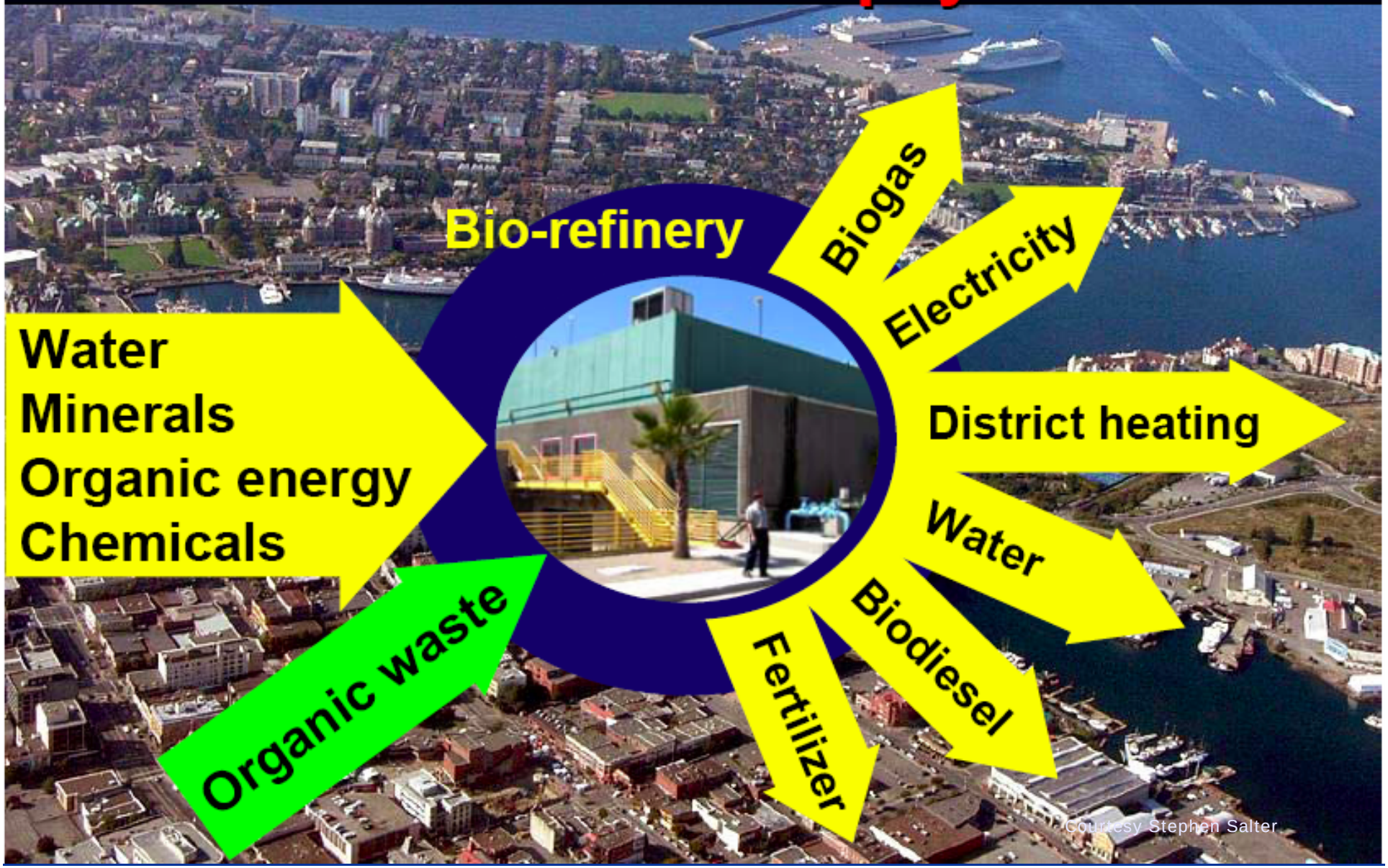
Sewage Treatment

Social: Livability, Good Urban Design Environment: ecology
Economics: Increased marketability – no views/save in remediation costs



If our focus is the community

we'll make waste pay



Resources from waste

Biodiesel

Fuel

or

Electricity

Oil & grease

Biogas

District heating
& cooling

Sewage

Garbage

Treatment

Heat
pump

Disinfection

Courtesy Stephen Salter

Integrated Design Dilemmas:
Teams and Regulatory Barriers
Architect
NGO
Ecologist
Engineers
Planners
Biologist
Project Manager
Green Valuer (economist)??
Municipal Ecologist??

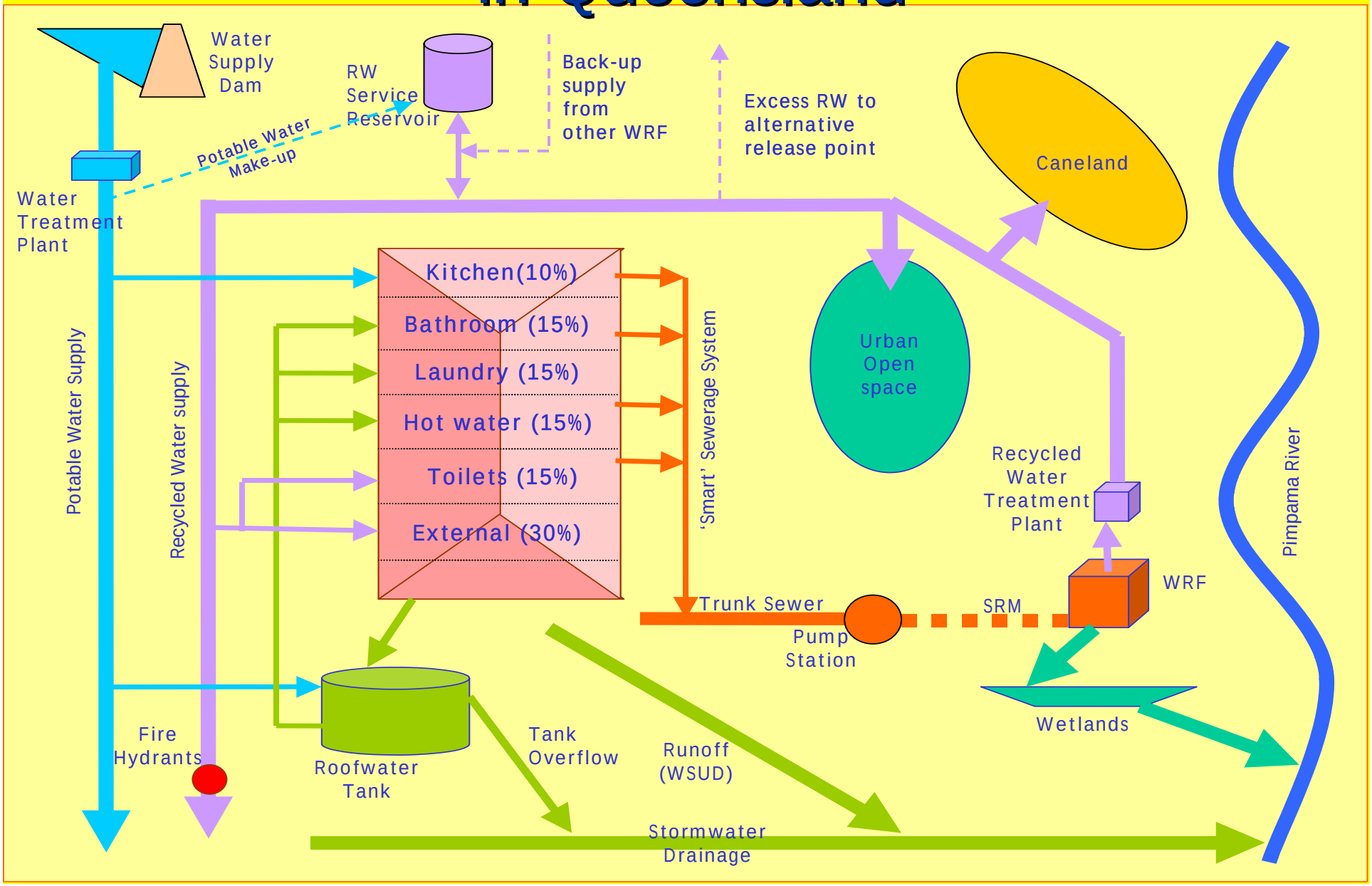
We classify water in order to try to understand its costs – not its VALUE

- 19th/20th Century
- Drinking (potable) water - asset
- Stormwater - problem
- Wastewater - problem

  Classification causes us to further simplify the water cycle and lose understanding:
- drinking water in - wastewater out
- rainwater in - stormwater out

- 21st Century
- Integrated Catchment Management Plans
- Green Value-based IDP

Water supply options at the Gold Coast in Queensland



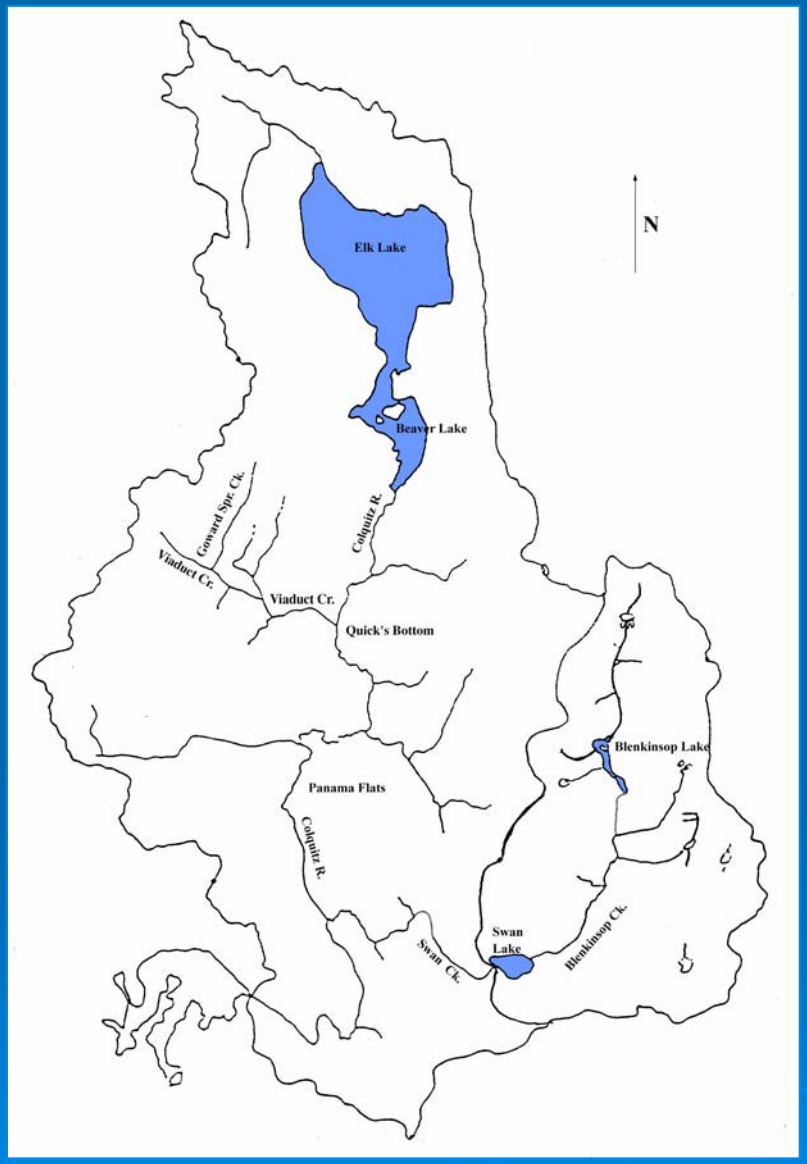
Accelerating Cooperative Riparian Restoration and Management

" Restoration will not happen by regulation, changes in the law, more money or any of the normal bureaucratic approaches. It will only occur through the integration of ecological, economic, and social factors, and participation of affected interests."

(March 20, 1996; USDI BLM, USDA FS, USDA NRCS Interagency strategy)

COOPERATIVE riparian RESTORATION

Colquitz River Catchment, Saanich, B.C. "Now What"

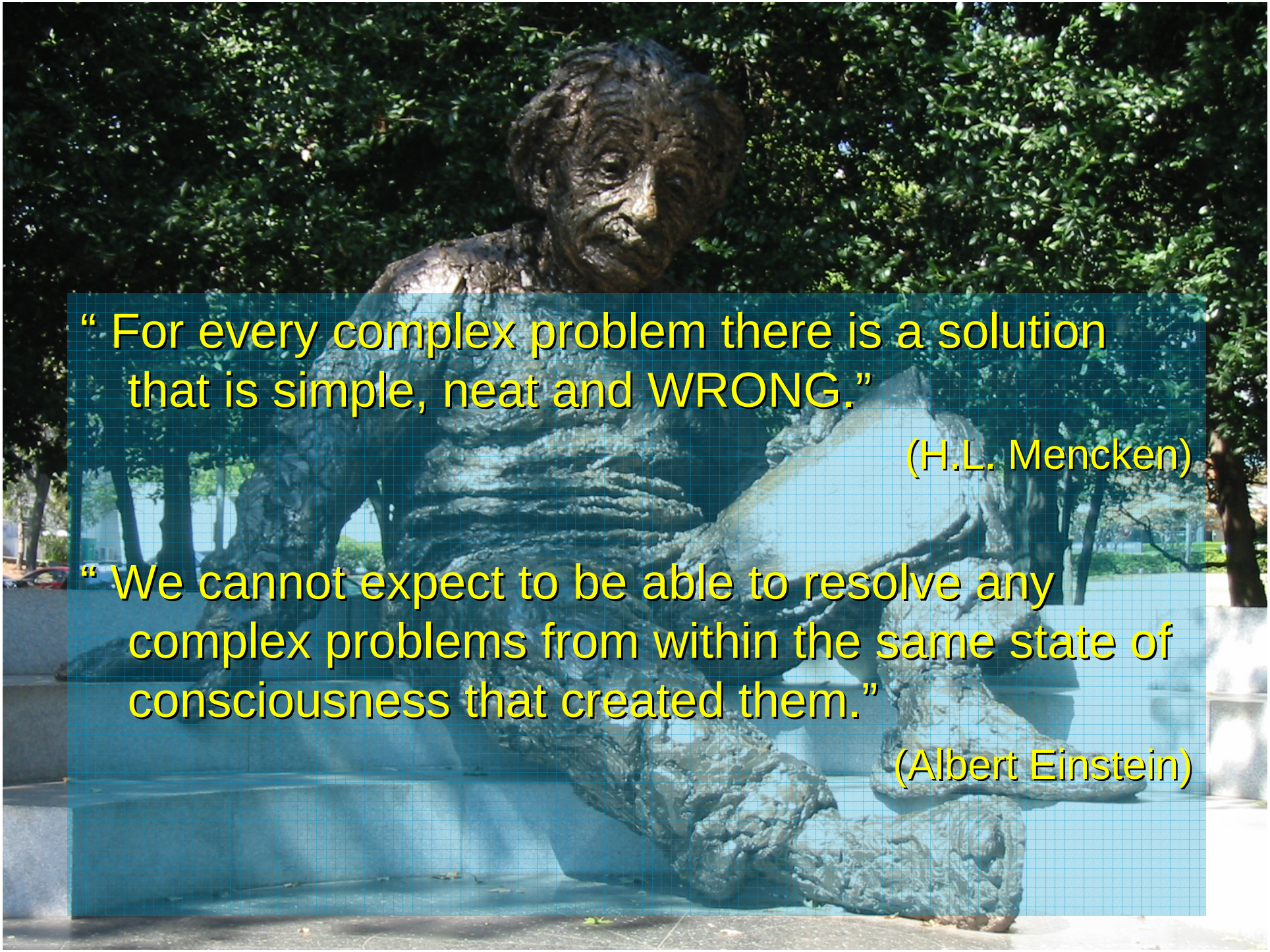


Nature's Revenue Streams (FCM)

PFC Watershed Assessment (REF)

Sustainable (Urban) Water "Then What"

- Vancouver Island (CAVI) is an excellent microcosm of the issues faced across North America (& globally)
- Time to act is now - a small investment in IDP and Green Value analysis will pay huge dividends.
- Centre for Sustainable Urban Water
  - ERC at NEU in Boston - 10 year program
  - East Coast / West Coast Collaboration
  - Practitioner-scale "academy"


“ For every complex problem there is a solution that is simple, neat and WRONG.”
(H.L. Mencken)
“ We cannot expect to be able to resolve any complex problems from within the same state of consciousness that created them.”
(Albert Einstein)